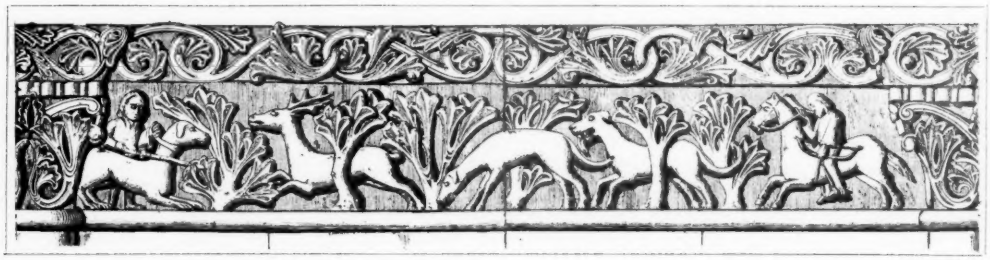


SAINT-FRONT OF PÉRIGUEUX, AND THE DOMED CHURCHES OF PÉRIGORD AND LA CHARENTE.

By R. Phenè Spiers [*F.*], F.S.A.

Read at the General Meeting, Monday, 17th February 1896; and registered at Stationers' Hall as the property of the Royal Institute.

IN 1851 Félix de Verneilh, a well-known antiquary of Périgueux, published a work entitled *L'Architecture Byzantine en France*, being a description of the church of Saint-Front at Périgueux, and of the domed churches of Aquitaine. The work was well illustrated with plans, sections, views, and details, all drawn and engraved by Léon Gaucherel, a well-known artist of the period, who had been recommended by Viollet-Le-Duc, and who executed his commission with all that artistic power and beauty of line which characterises the architectural publications of our French confrères.

De Verneilh explains in his preface that Gaucherel was not an architect, and himself still less so; nevertheless, between them, they undertook an architect's work in measuring and delineating the edifice, and he trusts that any shortcomings in the work may be put down to excess of zeal. Beautiful as the drawings are, they are not without their faults, and, as might have been expected, in some cases De Verneilh entirely fails to grasp the constructional peculiarities of the most important feature, viz. the pendentives of the domes, and he attaches importance to others which are either of no account or are inaccurately represented.* Notwithstanding these shortcomings, the quarto volume published in 1851 is still the only standard work on the subject, and, with the exception of three plates drawn for Gailhabaud by Viollet-Le-Duc in 1853, and one or two drawings in the Rev. J. L. Petit's work entitled *Architectural Studies in France*, and published in 1854, no attempt has been made either to produce fresh illustrations, or even to analyse the structure, notwithstanding the immense strides made in archæological research during the last forty years. Three years ago, when occupied with the new edition of Fergusson's *History of Architecture*, I had to work up the subject, and I took the opportunity afforded me by the visit of one of my students, Mr. Bolton, to Périgueux to obtain some information relative to the construction of the church; the valuable notes, however, which he was kind enough to obtain for me were not sufficient; so that I determined last year to pay a second visit to the town. It is the result of that visit which I propose to lay before you this evening.

I ought perhaps to preface my description by saying that the principal objects of De Verneilh's book were, first, to prove that the church of Saint-Front (and to prevent any

* I allude here more particularly to what he calls "long-and-short" work, having a vague idea that early Saxon buildings in England are distinguished by that construction; but the alternate high and low courses as shown in the casing of the central piers never existed. The courses varied in height just as the stones from the quarry came to the mason's hand, and when they were taken down during the restoration, the eight or ten narrow courses (not alternating as shown in his drawing) of the whole pier bonded no farther into the old work than the others. Jules de Verneilh's (brother of Félix de Verneilh) etching, published in the *Antiquities of Périgueux*, probably shows the real construction. Curiously enough, De Verneilh publishes this same drawing in Didron's *Annales archéologiques*, vol. xiv., apparently forgetting the fact that in his book alternate courses are shown.—R. P. S.

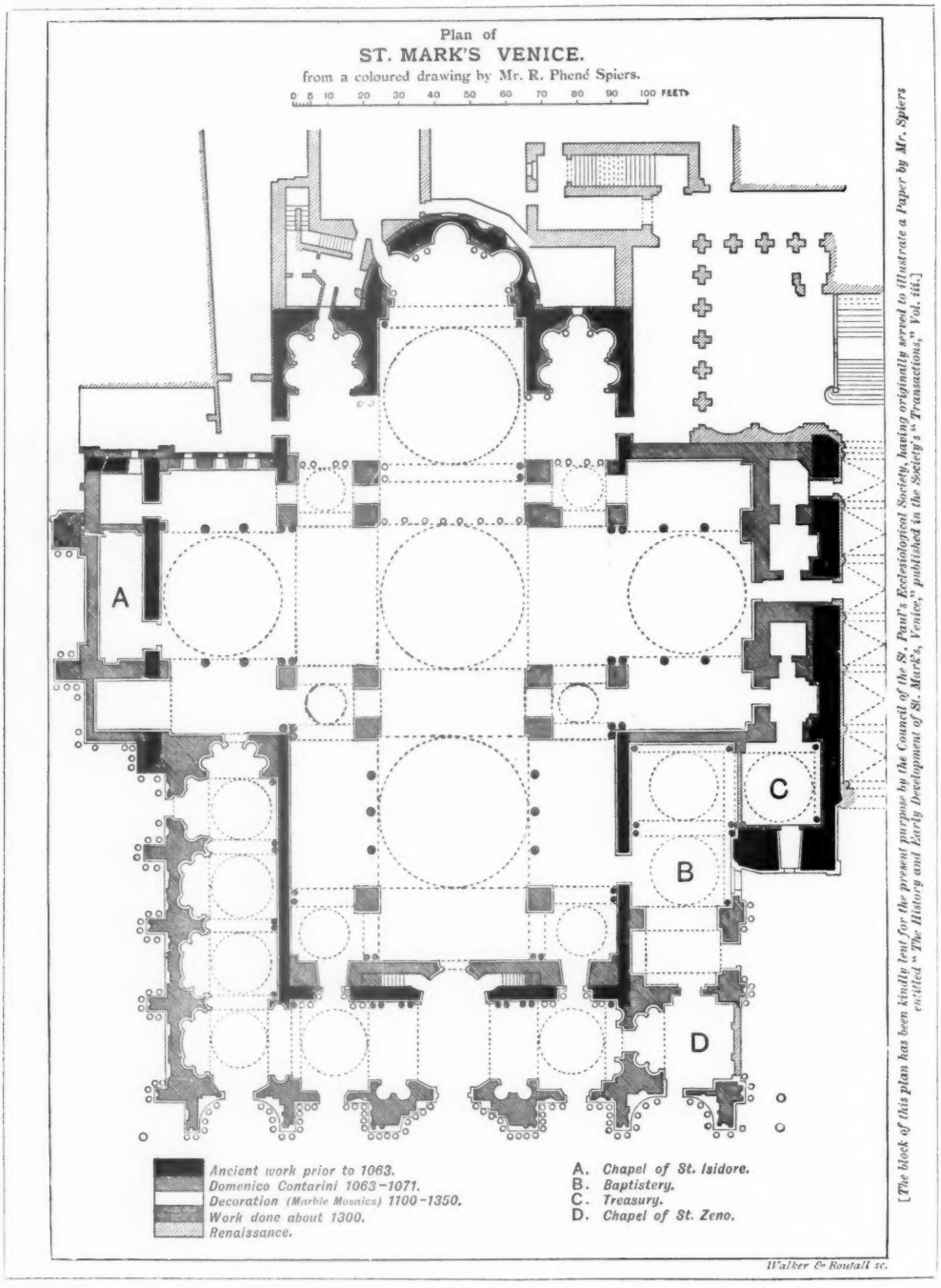

Plan of
ST. MARK'S VENICE.
from a coloured drawing by Mr. R. Phené Spiers.
0 5 10 20 30 40 50 60 70 80 90 100 FEET
A
B
C
D
Ancient work prior to 1063.
Domenico Contarini 1063–1071.
Decoration (Marble Mosaics) 1100–1350.
Work done about 1300.
Renaissance.
A. Chapel of St. Isidore.
B. Baptistery.
C. Treasury.
D. Chapel of St. Zeno.
[The block of this plan has been kindly lent for the present purpose by the Council of the St. Paul's Ecclesiological Society, having originally served to illustrate a Paper by Mr. Spiers entitled "The History and Early Development of St. Mark's, Venice," published in the Society's "Transactions," Vol. iii.]
Walker & Boutall sc.

FIG. 1.

misunderstanding I shall in future call it the five-domed church, to distinguish it from the old church of Saint-Front) was founded about 984, and was built in imitation of St. Mark's at Venice; and, secondly, that the five-domed church of Saint-Front was the model from which all the domed churches in Aquitaine were copied.

As St. Mark's was built in imitation of the church of the Holy Apostles in Constantinople, it had a distinctly Byzantine origin in the employment of domes. The five-domed church of Saint-Front was therefore looked upon as exhibiting a Byzantine character, and all the churches which are assumed to have taken it as their model, so far as the employment of the dome is concerned, are classed as Byzantine.

St. Froterius, Bishop of Périgueux, is recorded to have been buried in Saint-Front in 991. De Verneilh assumes, therefore, that the church may have been founded about 984. Bishop Martinus, who followed, died in the year 1000, and he and Raoul de Couhé, who succeeded him and died in 1013, were also buried in the church, the latter, according to the records, having directed the building of the church for twelve years. Lastly, the church was dedicated in 1047.

The dates given by De Verneilh for St. Mark's at Venice are 977 for the foundation of the church by Orseolo, Doge of Venice, and 1071 for its completion under Domenico Contarini and Domenico Selvo. In order partly to account for this singular introduction of a foreign style, De Verneilh draws attention to the fact that a Venetian colony of merchants settled in Limoges in the latter part of the tenth century, and he suggests that they may have contributed in some sense to the immigration of Venetian artists.

Within the last few years, however, the restoration of the church of St. Mark, and the temporary stripping of its marble facing in order to restore the brick core, revealed the fact that portions of the walls were of more ancient date than Orseolo's time. This caused a more diligent search among the archives of Venice, which resulted in the discovery that Orseolo's work was confined to the restoration of the old basilica, which had been partially destroyed by fire, and that the five domes which now form its chief characteristic were not erected till about 1063, under Domenico Contarini, who used up in the new structure many of the new capitals and columns provided by Orseolo in his restoration of the old basilica. The record also states that the new five-domed church was erected in imitation of the church of the Holy Apostles at Constantinople. This church was pulled down, in 1464, by Mahomet II., to provide a site for his mosque, so that we have only the description of the church by Procopius to go by.

Now, it is evident that if the five-domed church of St. Mark was not erected till 1063, either Saint-Front could not have been copied from it, or a later date must be ascribed to the latter for its erection. But De Verneilh's arguments as to the one being a copy of the other are, to my mind, conclusive, so far as the plan and general design are concerned, and, as will be understood, this opinion was strengthened by other considerations, to which I shall draw your attention later on. It has been suggested that the church of the Holy Apostles at Constantinople might have been the model on which Saint-Front was based, but there is absolutely no evidence to support such a conclusion. Besides, the settling down of a Venetian colony of merchants at Limoges (who, by the way, came over in 988, or four years after the date given for the foundation of the five-domed church of Saint-Front) might at a later period, through their descendants and others who followed them, have brought Venice and the Périgord into communication with each other, whereas there is no suggestion of any intercourse with Constantinople. However, as a matter of fact, it does not affect the arguments I am about to lay before you, and therefore I pass by that contested question.

The task which I have taken upon myself to-night is to prove that the buildings which lie at the west end of the five-domed church, and which are known as the Latin church, and attributed to Chronopius II., Bishop of Périgueux in the early part of the sixth century

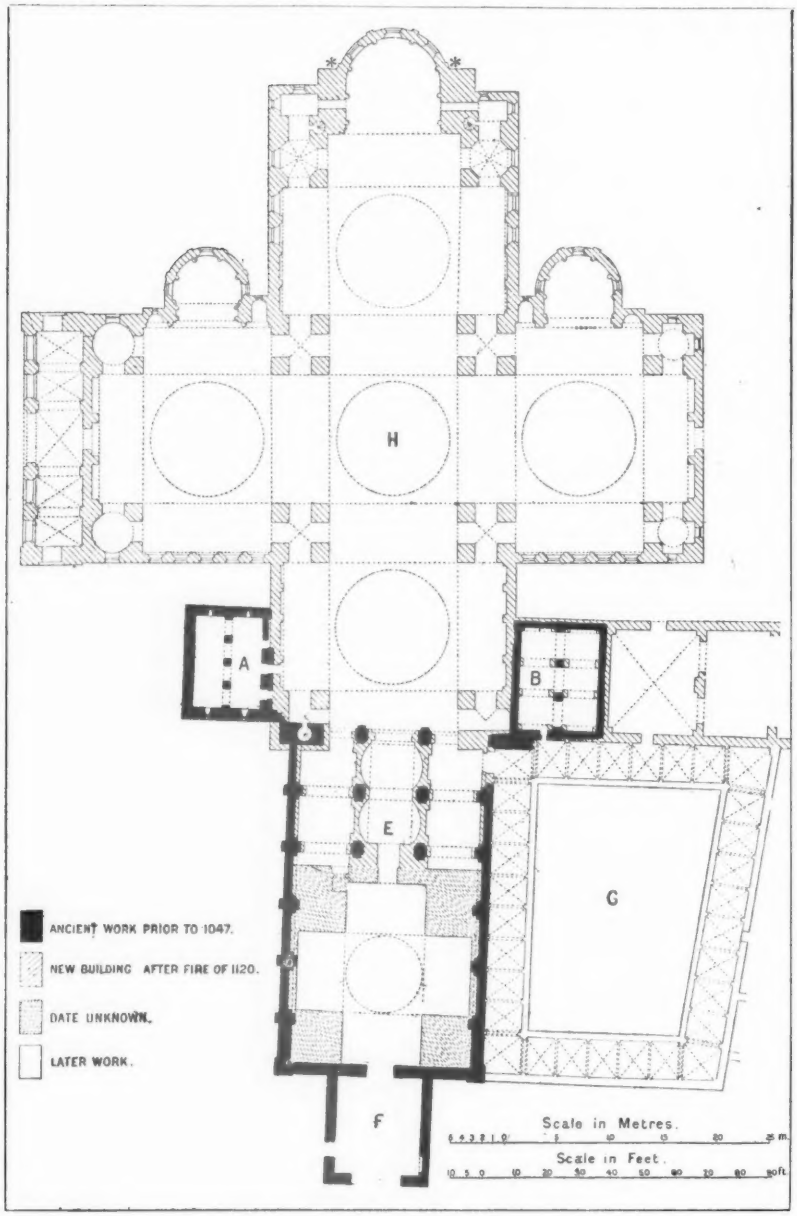


FIG. 2.—PLAN OF SAINT-FRONT, PÉRIGUEUX.

A, B, Confessionals. E, Nave of *vieille* Church. F, Porch of same. G, Cloister. H, the five-domed Church.
** This apse was taken down in the 14th century.

(505–36), are in reality those of the church commenced by Bishop Froterius, continued by other bishops, and dedicated on 21st March 1047 by the Archbishop of Bourges; that this church was burnt in a great fire which took place in 1120; and that subsequently the five-domed church was built in imitation of St. Mark's, so far as the plan and general design are concerned—St. Mark's at that time being one of the wonders of Europe.

My best course will probably be to describe briefly the churches of Saint-Front first.

Commencing with the five-domed church [fig. 2], its plan is that of a Greek cross, with domes over the nave, crossing, transepts, and choir, all more or less of the same size. In St. Mark's [fig. 1] the domes over the transepts and the choir are smaller, owing to their being built between more ancient structures. In

Saint-Front the three apses are placed respectively at the east end of the choir and on the east side of the two transepts. In St. Mark's they retained the triple apse of the old basilica. In Saint-Front the gallery passage is set against the wall [fig. 3]. In St. Mark's they utilised the columns and capitals of the old basilica, and brought the gallery out to the front. The barrel-vaults which carry the domes in St. Mark's are wider than those of Saint-Front, and the openings in the piers carrying the latter are therefore much narrower. Above the impost moulding of the main piers the general design is the same, but the construction and interpretation of the arched vaults of Saint-Front (which are pointed), the pendentives, and the domes differ. The domes and vaults of St. Mark's were covered with lead (I am referring to the church as completed at the end of the eleventh century), the domes of Saint-Front with stone lanterns of remarkable design [fig. 4], and the vaults with stone slabs, stepped. Both externally and internally the design of Saint-Front was extremely simple: it was faced with fine ashlar masonry, and the decoration is almost confined to the capitals of the wall-arcades and to the double tier of columns in the apses. St. Mark's was built with a brick core, and two centuries were spent in decorating it with marble slabs and mosaic, and with capitals brought over from the East. Whether the builders of Saint-Front ever contemplated a similar outlay, or whether they intended to decorate the interior with painted decoration, is not known. The domes were built in rubble masonry and covered with plaster, so that it may have been intended originally to paint their surfaces. I am not aware that this was ever done.*

At the west end of this five-domed church, and astride two bays of the nave of an older church, was built an enormous tower. A full description of the way in which this was done is given by De Verneilh in his book, and is certainly a most admirable account. The tower is plain up to a cornice on a level with the cornice of the lanterns over the domes of the church; above that are two lofty storeys, with two tiers of openings in each, the lower storey decorated with pilasters and capitals, the upper one with semi-detached shafts and capitals. It is crowned by a pyramid and a cone, carried on forty-eight shafts.

The two bays to which I have referred, as well as other buildings on the north-east and south-east respectively, and on the west side, formed part of a church which is known as the old or the Latin church. The two bays were probably the fifth and sixth bays of the church, on the east side of which may have been another bay, and a transept between the two confessionals which still exist, and beyond this transept three apses [fig. 23]. These were all removed when the five-domed church was built. On the west side of the two bays under the great tower, and between them and the west front, there is space for three more bays of equal size to the other two and one narrow one. The nave was covered with a timber roof, as there are no traces of a vault on the eastern side of the west front. The aisles were vaulted over with a succession of barrel-vaults, running at right angles to the nave. It is probable, therefore, that the western bay was vaulted in the other direction to resist the thrust of the series of barrel-vaults, and this may account for the narrow bay. At the east end, on the north side, there is a pier, with a staircase in it. On the south side nothing remains of the old work except a thick wall running into the cloisters.

The west front still remains perfect, except for the grievous mutilation of its decorative features. It forms the internal wall of a house built against it on the west side, and most of its decoration was chipped off, the whole being covered with stucco. It was in this condition in the fifties, when De Verneilh was measuring it, and he had to trust to sketches made by a M. de Mourcin in the beginning of the century. This house has lately been acquired by the Government and the stucco removed, so that it is possible now to see some of the detail left.

* The west dome of the cathedral of Cahors was painted with figure subjects, which were discovered in 1890 under several coats of whitewash. Others were found in the east dome, but in too bad a condition to be preserved.—R. P. S.

Though fairly correct in the main lines, the artist has improved upon the details. Throughout this part of France they seem to have lavished all their resources of decorative design on their west fronts, the interiors being kept perfectly plain, and in this respect the west façade of the

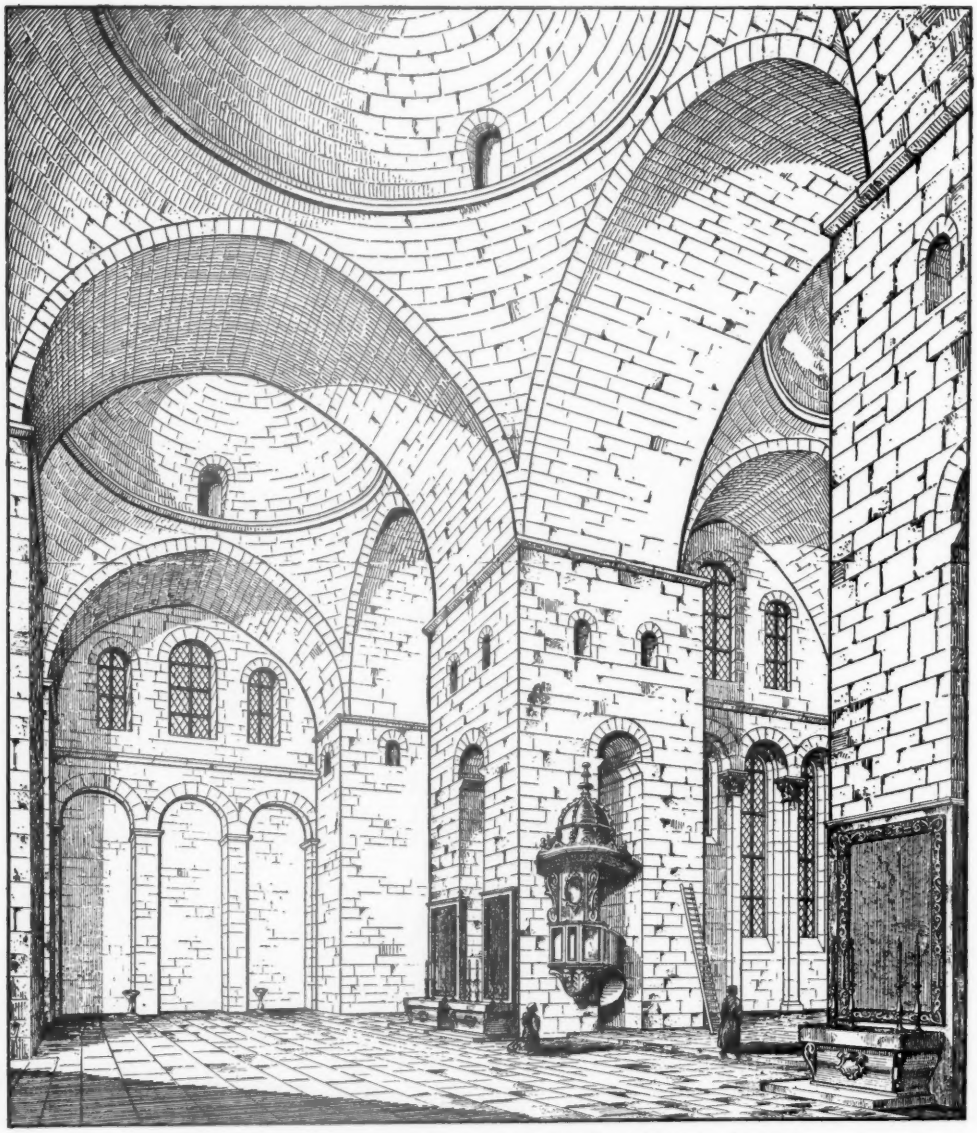


FIG. 3.—INTERIOR OF SAINT-FRONT. (From an illustration by the late Edmund Sharpe.)

church must have been a very remarkable frontispiece. Unfortunately, the storeys of this house were only about 7 feet in the clear, the flooring was full of pitfalls, and there was very little light, so that I could only measure and draw some of the details. These, with an outline

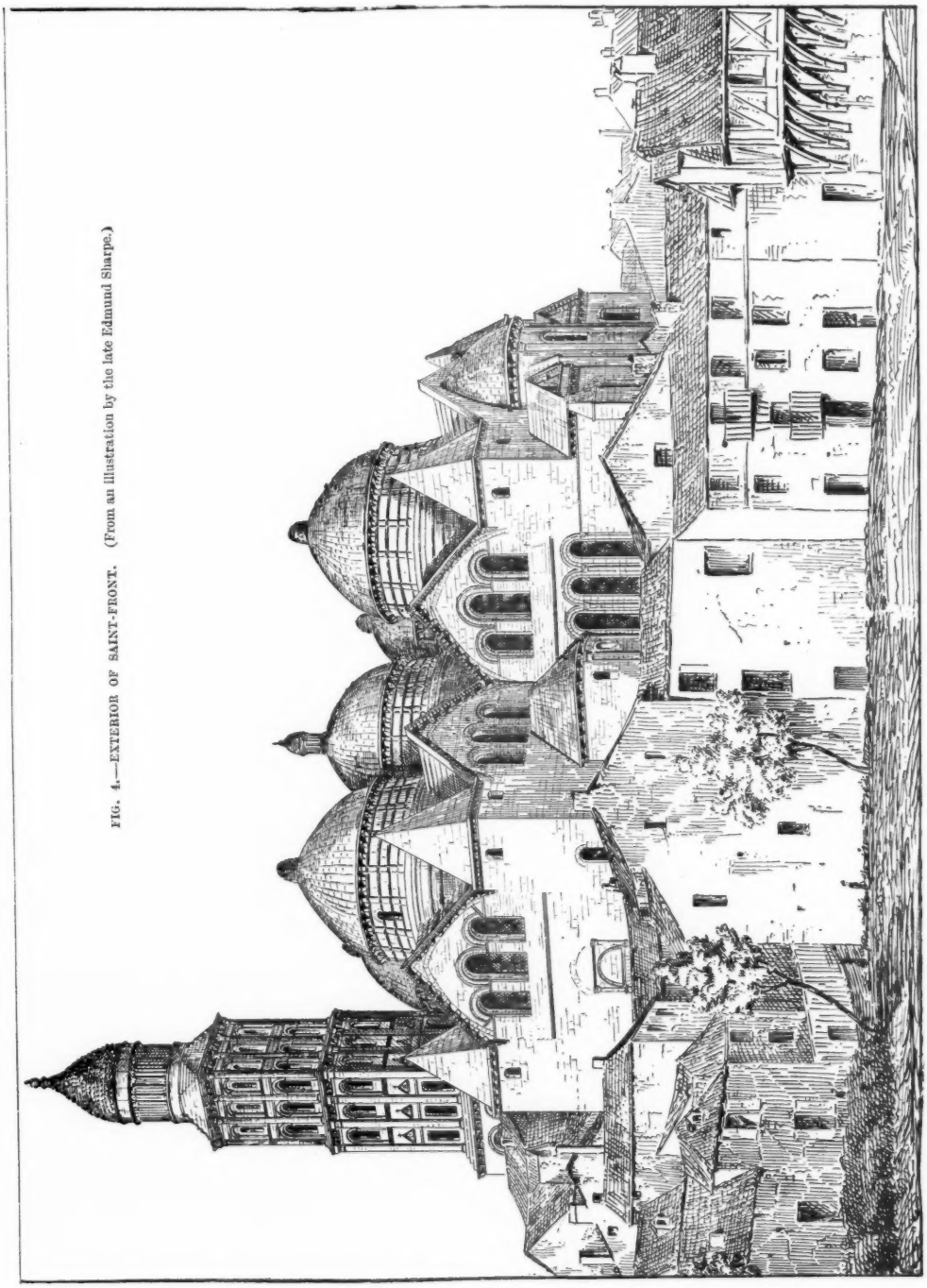


FIG. 4.—EXTERIOR OF SAINT-FRONT. (From an illustration by the late Edmund Sharpe.)

taken from De Verneilh's work, will better explain than words could the nature of the design. In front of the west end was a porch, about 17 feet square, with a remarkable frieze, mutilated as regards its figure decoration, but otherwise very perfect, and visible from the market-place; the gable above it is hidden in other constructions. The cloisters are of twelfth- and thirteenth-century date; and as they and the other monastery buildings do not concern my argument, my description stops here.

I propose now to take up the several parts in detail, with a view of arriving at the probable date of their erection. Commencing with the so-called Latin church, this is sometimes called "la vieille église," to distinguish it from the other. De Verneilh, beyond calling it once Merovingian, does not attempt to fix a date. The paragraph in which he uses the word is amusing from an antiquarian point of view. *In the Latin church*, he says, *the pointed arch does not appear anywhere, even in the vaults; a remark which might seem superfluous; but as the pointed arch is largely used in the Byzantine basilica, one almost expected to find it in the Latin church. When pointed arches are accepted as tenth-century work, it would cost little to go further back, even to the Merovingian epoch.* As the only other period on record in which a church is said to have been built is during the episcopate of Chronopius II. (505–536), De Verneilh calmly suggests the possible employment of the pointed arch in France in the sixth century.

Now let us examine the structures still existing. The confessionals on the north and south sides are each divided by a row of piers carrying barrel-vaults. The masonry of the walls, piers, and arches is of fair size,* well wrought, and with thick mortar-joints in relief. The imposts of the arches which served to carry the centres are not returned on the face of the piers, where they would not be required. All of these characteristics accord best with the work of the eleventh century as found in the crypts of Saint-Cyr, Nevers (1028), or of St. Stephen at Auxerre, about the same period. They show a great advance when compared with the outer crypt of Saint-Germain, also at Auxerre, of the ninth or tenth century. It is quite impossible that the confessionals could date before the time of Charlemagne, because the masonry employed before, and, in fact, long after, his reign was composed of small stones with thick mortar-joints, and with courses of bricks every three feet in height. It is true that, as De Verneilh points out, a single row of bricks two inches thick is built in under the impost course, but that is an argument against their age. Not one row, but two or three, would have been employed in the Merovingian period, and these brick courses would have been continued throughout the confessionals if they had been built prior to the tenth century. Bricks also would have alternated with the voussoirs of the arches, as in the Basse-Œuvre at Beauvais, Saint-Martin at Angers, Savenières, and all early buildings up to and including the tenth century.

The nave is separated from the aisles by complex piers—that is to say, on the side of the nave is a pilaster strip which probably carried the tie-beam of the main trusses, or possibly an arch † thrown across the nave, as in San Miniato, Florence (1014). On the aisle side is another pilaster or respond which carried the transverse arched ribs. But the coupling of piers was not introduced into France till the eleventh century. The earliest examples known are in Italy (which at this time was quite a century in advance of France), in the church of Sant' Eustorgio at Milan, dating from the beginning of the tenth century, where they were introduced to carry

* The courses in the piers are 12 inches high.—R. P. S.

† There is an argument in favour of arches. The barrel-vaults perpendicular to the nave rise towards the nave wall. De Verneilh thinks this might have been to give a weathering to the stone slabs which covered them. But there are much simpler methods than this of giving a weathering. It is probable that the rising of the barrel-vaults was intended to counteract the thrust of these arches thrown across the nave as suggested, unless they had in contemplation the vaulting of the nave at a later date, never realised.—R. P. S.

arches across the nave and aisles. A second example is found in the church of SS. Felix and Fortunatus, near Vicenza, added in the second half of the tenth century. In churches of earlier date in France the cross arches were carried on impost mouldings crowning a square pier. We find an interesting example of this in the church of Germigny-les-Prés (Loiret), built by Charlemagne in 806. The church was said to have been built in imitation of Aix-la-Chapelle, but there is no resemblance between the two, except that barrel-vaults were employed on each side of the square central tower, and that the piers were built in stones of unusually large size, for that period at all events: here the piers are all square [fig. 5], and the four cross arches are all carried on bold impost mouldings. At Granson, in Switzerland (built in the beginning of the eleventh century), rather than carry the pilaster down the pier, a recess is left in the upper part of the pier [fig. 6] to give greater play to the arches and their imposts. In other words, the *articulation given to the architectural members which led to the great development of Romanesque and Gothic architecture was not recognised till the eleventh century in France.*

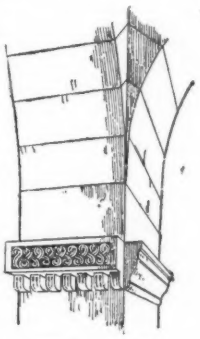


FIG. 5.—IMPOST, GERMIGNY-LES-PRÉS.

With regard to the barrel-vaults over the aisles running at right angles to the nave, the earliest-dated examples known are those in the narthex of Tournus Cathedral, built after the fire of 1006, and dedicated, with a portion of the nave, in 1009. De Verneilh suggests that they were copied from those of Saint-Front, forgetting that, according to his version as regards the date of this work, there is a trifling difference of six centuries between the two structures. Tournus, it must be remembered, is near Cluny, the great building centre of France in the eleventh century, and it is much more probable that they were built there first to avoid a second disaster by fire; thence they went to the north, to Saint-Remy, at Rheims; to the west, to Limoges (1028); and thence descended to Périgueux, probably about 1030. The thrust of the arches carrying these cross vaults on the south side is counterbalanced by the existing cloister, which probably replaced an earlier example. On the north side are buttresses. This, again, is an eleventh-century introduction. The Romanesque architect of Provence had already at an earlier date used pilaster strips with capitals, but this was a Roman tradition, and was employed only to break up the wall-surface. There were no buttresses at Germigny. The earliest examples known in France are the semicircular ones of Saint-Remy at Rheims, of the tenth century. The square or rectangular buttress dates only from the eleventh century.

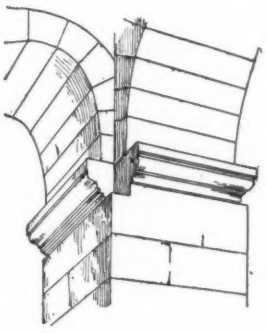


FIG. 6.—IMPOST, GRANSON.

When we come to the west front, we are on more certain ground. The whole is constructed in ashlar work in regular courses; and even in ascribing 1040 as the date, the execution of its ornamental detail is in advance of that found elsewhere in France.* This is specially the case with the singular zigzag strings which decorate the front. In earlier examples, as in Saint-Généroux, we find hood-moulds to the windows, and triangular pediments between them. We also find a surface decoration similar to that which is known as *opus reticulatum*, and which they borrowed, probably, from Roman sources. Occasionally also, as in Saint-Généroux, patterns were incised on stones, and filled in with some coloured material. The

* I am informed by M. Lambert, the architect-inspector of the works, that there are indications of four or five alterations or additions in the old church; so that it is possible the completion of this west front was carried far into the century, in which case its design and execution might bring the date more in accordance with that of other known examples, as, for instance, the west front of Le Mans Cathedral.—R. P. S.

architect of Saint-Front went further: he built his zigzag and horizontal strings 14 inches [fig. 7] into the wall, and gave them a projection of 6 inches. The geometric ornament on them is cut with a regularity and precision quite unknown in earlier times; and although in some parts one meets with an archaic design, that is probably only due to a desire to introduce new features.

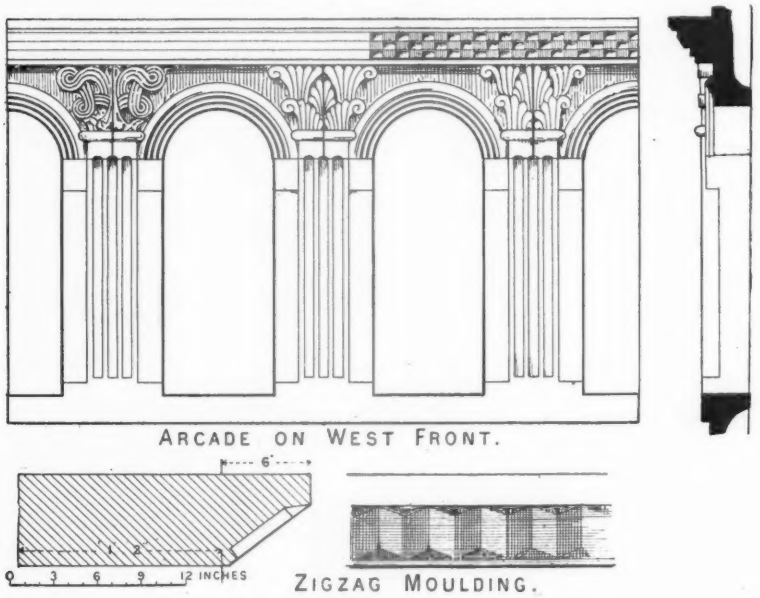


FIG. 7.—THE OLD CHURCH, SAINT-FRONT.

This remark applies to the arcade below the zigzag decoration [fig. 7] and to the ornamental frieze on the porch [fig. 8]. Here, it seems to me, the artist was endeavouring to reproduce the designs found on ancient sarcophagi. The arcade is divided by small pilasters; the arch, the half capital on each side, and a portion of the shaft are all cut out of a single slab, the joint running through the centre of the capital. The frieze over the porch is similarly divided with the joint through the centre of capital and shaft. In the centre is the tree of life—a favourite subject in ancient sarcophagi — with figures on either side which have all been chopped off. The introduction of figures at all is a proof of the late period of this front, for throughout the dark ages, from the fifth to the tenth century, even carved ornament is rarely if ever found, and at Germigny-les-Prés (806) nearly all the ornament is in stucco. It was the absence of this power to find artists who could carve ornament which probably led the designer of the churches of the Merovingian era, and, with rare exceptions, those of the Carlovingian era, to decorate the wall-

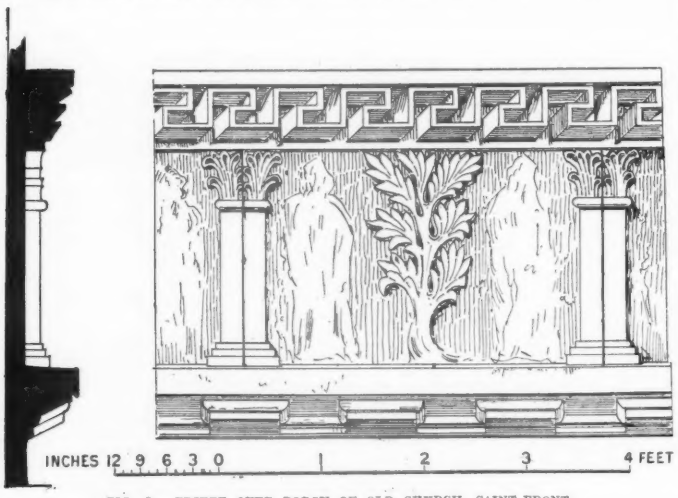


FIG. 8.—FRIEZE OVER PORCH OF OLD CHURCH, SAINT-FRONT.

surfaces of their buildings with courses of bricks and zigzag patterns of the same, and to alternate the voussoirs of their arches with brick courses. Saint-Martin at Angers (of which the foundation was laid by Hermengarde, the wife of Louis le Débonnaire, just before her death in 819), Savenières, Vieux-Pont-en-Auge (Calvados), and the Basse-Œuvre at Beauvais, all attributed to the same period, may be quoted as examples.

I have omitted to state that the nearest approach in style and character to the capitals of this arcade and frieze are those in the crypts of Saint-Cyr, Nevers (1028 A.D.), and of the cathedral of Auxerre (1030 A.D.).

The church which I have just described measures approximately 200 feet long and 130 feet through the transept, and including the two confessionals. It was therefore an important church for those times, and when compared with the other church which was dedicated on the same day, viz. that of St. Stephen of the City, was probably regarded as the more beautiful of the two.

If I have been able on architectural and constructional grounds to prove that the so-called Latin church could not have been erected before the eleventh century, it must have been the building referred to in the records,* and the five-domed church must be attributed to a later date. The next records relative to the church are of the greatest importance as regards this question. There are three of them, taken from ancient chronicles, and as they are in Latin, I have given them in full in a note.† The third is apparently a transcript from the second, but the word "burgus" is introduced to distinguish the town church of Saint-Front from the city church, viz. that of St. Stephen the Cathedral.

The other two records read (leaving out the allusion to the church of St. Mary Magdalene, Vézelay,‡ which was burnt apparently on the same day) :—

1. "In the year 1120, 22nd of July, the Monastery of Saint-Front of Périgord was burnt, "with many men and women."

2. "William of Alba-Rocha, Bishop of Périgueux, in whose time the Monastery of Saint-"Front was burnt down, with all its ornaments, in a sudden conflagration, for the sins of the "people, and the bells in the bell tower were melted in the fire. At that time the monastery was "covered with timber roofs."

Exception has been taken that these records refer to the monastery and not to the church. But all the earlier documents also refer to the monastery and its building; consequently it may be assumed that the church was the more important portion. At all events, there is no doubt that the bell-tower was part of the church; and as the fire melted down the bells in it, the timber-work referred to in the records was probably that which covered in the nave and transepts.

The last sentence of the second record is of the greatest importance. "*Erat tunc temporis* "*monasterium ligneis tabulis coopertum*" seems to me to prove that the chronicler desires to call attention to the fact that he was not speaking of the then existing church, which was built entirely in stone, but of another and earlier church, the roofs of which were in timber, as those which I have described as covering the nave, and probably the transept, of the so-called Latin church.

It is quite evident that the sudden conflagration quoted in the records could not apply to

* Anno incarnationis D. noningentesimo septuagesimo sexto, Froterius episcopus ab Hugone, Capetio Francorum rege, Petragoras missus est et rexit ecclesiam annos 14, menses 6, dies 3. Obiit autem anno D. 991, V. idus decembris, et sepultus est in basilica S. Frontonis. Hic episcopus cæpit ædificare magnum monasterium S. Frontonis.

† Anno MCXX. XI. Kalend. Augusti monasterium Mariæ Magdalenæ de Vizeliaco combustum est cum 1127 (*sic*) hominibus et feminis. Similiter incensum est monasterium sancti Frontonis civitatis Petragoricæ cum multis hominibus et feminis.

Guillelmus de Alba-Rocha, episcopus petragor., cujus tempore hujus sancti Frontonis et monasterium cum suis ornamentis repentino incendio, peccatis id promerentibus, conflagravit, atque signa in clocario igne soluta sunt. Erat tunc temporis monasterium ligneis tabulis coopertum.

Hoc tempore burgus sancti Frontonis monasterium cum suis ornamentis repentino incendio, peccatis id promerentibus, conflagravit, atque signa in clocario igne soluta sunt. Erat tunc temporis monasterium ligneis tabulis coopertum.

‡ The narthex of Vézelay was built in 1130, after the fire.

the five-domed church, for, as I have already described it, there is no timber whatever in its construction—floor, walls, vaults, domes, lantern, and roof-slabs are all in stone—so that there was nothing to burn; and the same applies equally to the tower, the west buttressing of which shows that the nave roof of the old church existed no longer.

My next task is to attempt to prove that the five-domed church and the tower on the west side were not constructed till after 1120 A.D. By this time the church of St. Mark at Venice was completed, so far as its main structure was concerned, and already the panelling of the walls with marble and the decoration of its vaults and arches with mosaic had made some progress. It was one of the wonders of Europe, and the idea of copying its plan and general design would appeal at once to a race of builders who for more than a century, as I shall prove later on, had been building domed churches throughout Aquitaine, who were perfectly acquainted with their own methods of building domes and pendentives, and therefore would not be obliged to trust to foreign workmen to execute them.

In speaking casually of the restriction in the size of the transept and choir domes of St. Mark's, Venice, I stated that it was in consequence of their desire to retain ancient walls; and the same remark applies equally to the other domes. The external walls of the old basilica, and the foundation walls, at least, of the aisles, fixed all the dimensions. (The width of the nave of St. Mark's is the same as in that of the old basilica.) Here in Saint-Front we find for the west dome a parallel instance of restriction. The two confessionals of the early church have been preserved, and the dome and its aisles are placed between them. There was no necessity to limit the size of the other domes, and in this particular they did not copy St. Mark's, all the domes being of equal size.

This is, of course, purely a surmise on my part. It must be taken for what it is worth when comparing the two plans.

I have now to analyse the five-domed church as I did the other; and here my task is more difficult, because this remarkable church has actually, since 1856, been almost entirely pulled down and built up with new material. On the south transept wall remains about 30 to 40 feet superficial of the ancient stonework, and here and there within the building a lean capital suggests that it may be the old one, scraped, to make it accord with the new work.

Unfortunately for the historical value of the monument, the late M. Abadie,* instead of copying the old work, was allowed to introduce "improvements" of his own—improvements which he thought the early masons would have adopted if they had had the taste and possessed the knowledge of the present day. For instance, the great pointed arched vaults which carry the pendentives were originally struck from a level below the impost mouldings [fig. 15], so that, as a matter of fact, the height of the arch was only a little greater than the half-span of the arch. As I shall point out later on, the early masons had already found out the tendency to sink in the upper voussoirs of a circular arch; consequently, in accordance with their tradition, they adopted the pointed arch. Anxious, however, to retain the proportions of the arches of St. Mark's, which are circular and slightly stilted, they introduced the method adopted in the western dome of St. Stephen, and struck their pointed arches from a level below the impost, and so they are shown in De Verneilh. But Abadie thought the appearance had a "debased" character, so he raised them [fig. 16],† the springing being now 21 inches above the impost level instead of about

* The architect entrusted with the restoration.—R. P. S.

† There seems to be a disposition of late in Paris to disguise the fact that in the restoration of Saint-Front alterations have been made, or that the centres of the arches have been changed: some denying that the level has been raised at all, and saying that it is an idea which should be at once refuted. But Abadie in his lifetime made no secret of the fact; on the contrary, in 1875, when he met Edmund Sharpe and others of the A.A. excursion party, he distinctly stated that he had raised the centres because the arches had a debased appearance; that to attempt to reproduce irregular methods of construction because the early masons had to be content with tentative efforts would be illogical, and that the architect would fail in his duty if he did not avail himself of all the resources of modern construction, so as to produce a result

15 inches below it. He also altered the distance between the centres of the pointed arch, which were about 5 feet 6 inches apart and are now only 2 feet. I might here point out that, at some period unknown, the four central piers of the church had been encased with ashlar measuring about 9 inches thick.* De Verneilh has attempted to account for this by a suggestion that these piers were giving way, and that this was done to strengthen them.

Having raised the arches, Abadie was obliged to increase the height of the upper portion of the church, which now presents a proportion different from that of the original structure. The original eastern apse was of shallow depth : it was replaced, in the fourteenth century, by a chapel dedicated to St. Anthony, of moderate height, 60 feet long. This Abadie removed, and replaced by a Romanesque apse of enormous size, covering the whole area of the Lady Chapel, and with a vault rising higher than the main barrel-vault of the church, so that it now dwarfs the whole building. He also, I think, raised the cupolas and the lanterns which enclose them, and covered the cupolas with rings of pine-cone crestings which never existed, and which in all other buildings of Aquitaine are confined to the cupolas of towers. On the centre cupola there existed a small lantern cupola carried on shafts, but on the others were smaller features representing pine-cones : these he also replaced with lantern cupolas, and crowned the plain pyramids which flanked the gable-ends with similar features, so that the cathedral now bristles over with pinnacles, like the Cathedral of Milan, and the simplicity of the old work is no longer maintained.

This, however, is a digression from my subject. The drawings of De Verneilh, Viollet-Le-Duc, Sharpe, and Petit, though they do not quite correspond in detail, are sufficient to prove that the execution of the ashlar masonry throughout, the regularity of the coursing, the fineness of the joints, the setting out and building of the pendentives and domes, must have been the result of long traditional experience of at least a century, and certainly not the first attempt to build such complicated features as those which are found throughout Saint-Front. The domes and pendentives show much greater knowledge of stereotomy than that which is found even at Fontevrault and Angoulême, built in the first quarter of the twelfth century.

This is, however, not the only evidence I have to lay before you. In Périgueux itself is a valuable example, built about 1020—a fragment of the west dome and pendentive of St. Stephen, the church which was consecrated as the cathedral, on the same day as the church of Saint-Front, in 1047. Of this fragment I made a careful sketch last year with the camera lucida, which I have enlarged [fig. 9], adhering strictly to the jointing drawn on the spot. In comparing this with the pendentive of Saint-Front, drawn out from De Verneilh's measured drawings [fig. 15], you will be able to judge for yourselves whether, at a period when the architectural development throughout France was progressing with such rapid strides, viz. the first fifty years of the eleventh century, it is possible that in 990 they should have been able to work the ashlar masonry with the perfection shown in Saint-Front, and thirty years later, when building the cathedral in the same town, there should be so remarkable a falling-off in the execution. This palpable discrepancy between the construction of the two buildings naturally also struck De Verneilh, who tries to excuse the crude and tentative efforts in St. Stephen's on the plea that the "architect of Saint-Front" (about whom nothing, by

which should last for many ages. This opinion was held also by the Bishop of Angoulême, to whom I had the privilege of being introduced towards the end of the excursion. The bishop asked me if I was content with the results of my tour. I, not knowing his views, and perhaps incautiously, replied that I had been very glad to see these churches before they had been restored. This rather piqued his lordship, who replied that, when those responsible for the proper maintenance of the cathedrals and churches had been able to persuade the Government to make grants for their restoration, it was advisable that the works should be carried out as completely as possible, so that they might last for centuries.—R. P. S.

* When this was done, the impost moulding was raised above the old one. I am informed by M. Lambert that when this casing was removed during the restoration it was found that the stone used in the primitive construction was of inferior quality, hence the necessity to strengthen the piers.—R. P. S.

the way, is known) "died before he was able to train good pupils amongst the monks of the "abbey. He was no longer there to give a profile of the moulding"—there are no mouldings, as we understand the term, in either structure—"or even to make a design for a capital. All the "masons could do, therefore, was to copy Saint-Front as best they could, carefully avoiding all "difficult construction such as that involved in the arched openings in the great piers, leaving "out all the decoration, and to trust to gaining time by hurrying on the construction" (*sic*). I am afraid this plea can scarcely be accepted as valid. The pendentives of the second dome of St. Stephen—viz. that now forming the first bay of the nave—show the same irregular junctions between the pendentives proper and the voussoirs of the pointed arch-vault carrying them. The construction at that time was so tentative that it was necessary to cover the stonework with

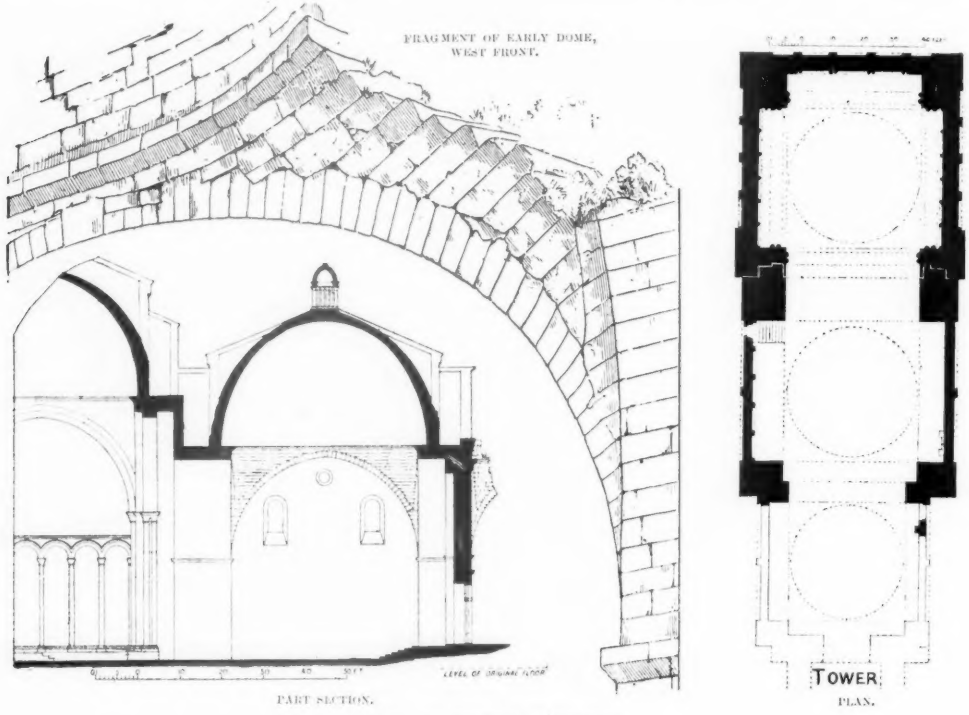


FIG. 9.—ST. STEPHEN, PÉRIGUEUX.

plaster. This is the case with all the other early domes of the eleventh century, at Saint-Avit-Senieur, Cahors, and Saint-Jean-de-Cole. At Angoulême is, I think, the first dome in which the ashlar-work was sufficiently well wrought to dispense with a plaster coating.

I now come to the second portion of my evidence, that which is shown in the capitals and other decorative accessories of the building. De Verneilh lays great stress on their Byzantine character, and his beautiful engravings would seem to bear out his contention. The influence of Byzantine art in Europe is a subject to which for some years I have devoted a considerable portion of my leisure, and I selected Perigueux with the express object of continuing my researches into the Byzantine influences in early French work. So far as Saint-Front was concerned, the result was absolutely *nil*; not only is there no Byzantine feeling in the capitals, but there is even less than is found in other buildings of the twelfth century,

and, so far as earlier periods are concerned, the contrast is all the more striking; for, curious to note, notwithstanding the superabundance of Roman work found throughout the South of France, the artists of the end of the tenth century and nearly the whole of the eleventh century seemed to prefer the interlaced patterns and the V-section leaves of the Byzantine school.

Not only are the capitals of Saint-Front not Byzantine, either in design or execution, but they are advanced Romanesque of the twelfth century. On that point I should like to

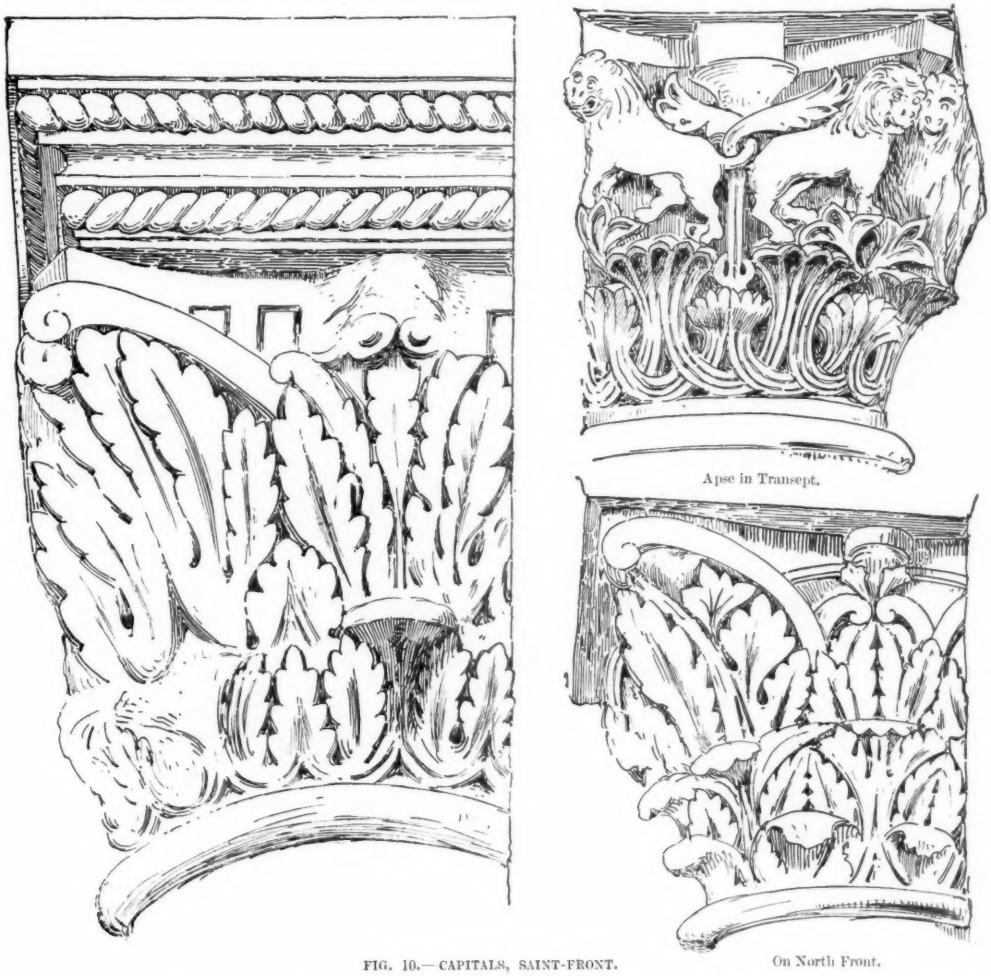


FIG. 10.—CAPITALS, SAINT-FRONT.

quote the observations of the late Adolphe Berty, one of the most accomplished antiquaries of his time, to whom we owe the admirable drawings of the Baptistery of St. John at Poitiers, made before its restoration in 1854, and of numberless other churches of all periods, and who wrote the description of Saint-Front to accompany Viollet-Le-Duc's drawings in Gailhabaud's work. Berty, reviewing De Verneilh's statement that Saint-Front was anterior to the second half of the eleventh century, says:—"So far as we are concerned, it appears extremely "improbable that such could be the case. That a church was built by Froterius and consecrated

"in 1047 is a fact of which there can be no doubt, because the historical evidence establishes "it; but that this church should be the one we now see, with its Corinthian capitals and "domes, we do not believe." "The ornamentation is, so far as we are able to judge, much "superior in style to that which we are accustomed to find at the beginning of the eleventh "century, and it betrays that influence of ancient monuments which, as we have often had "occasion to remark, is much more felt in the twelfth than in the eleventh century."

I made several drawings of the capitals [fig. 10], both new and scraped. I also drew the ancient fragments in the cloister, and subsequently, passing through the South of France to Saint-Gilles and Arles, I found in the pure Romanesque detail of those churches of the twelfth century the same influence of Roman work which at that period began, as Berty says, to exert itself. There is one capital in particular, of which there are eight examples in

FIG. 11.—CAPITAL, ELNE.

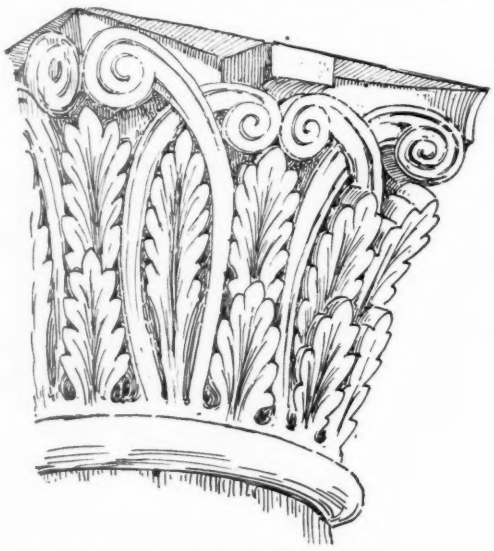
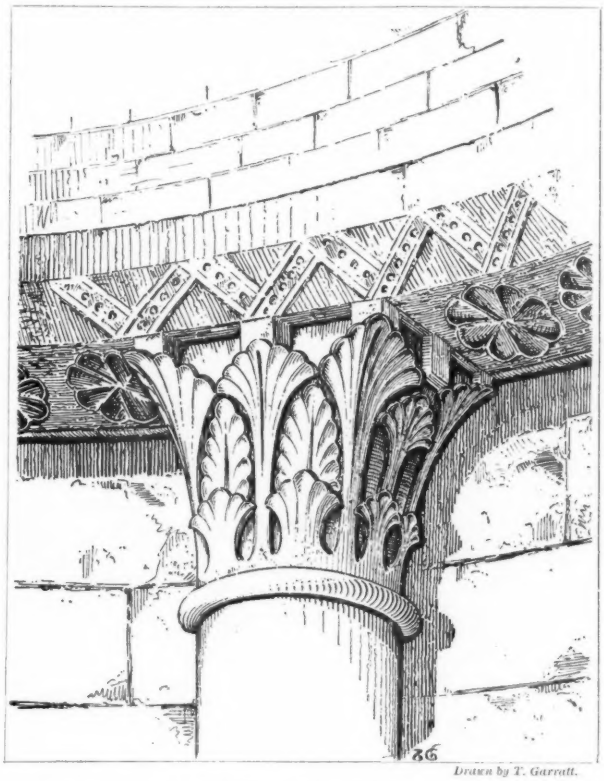


FIG. 12.—CAPITAL, SAINT-MICHEL D'ENTRAIGUES.

Saint-Front [see fig. 10], which, so far as the lower portion is concerned, is absolutely the same as some in the cloisters at Elne, also of the twelfth century; in fact, the same artist might have been brought over to carve them [fig. 11]. There is also a capital at Saint-Michel d'Entraigues [fig. 12] (dated 1137) which in design is similar to, in execution even earlier than, those of Saint-Front. In the apse of the same church the soffit of the architrave carried on shafts is carved with sunk coffers in imitation of Roman work [fig. 13], and the same decoration was found in a similar position in the apse of the south transept at Saint-Front [fig. 14, p. 250].

It necessarily follows that if the bays of the nave and aisles of the old church were not built till after the year 1030, the great tower erected on them, which was built at the same time as, and formed part of, the five-domed church, could not have been erected at the latter end of the tenth century, as asserted by De Verneilh. In the style and character of its detail it belongs to the same period as the five-domed church. In consequence of the enormous height to which the tower was subsequently carried, it was apparently found necessary to strengthen the tower walls, and openings in them have been filled in.

The logic shown in De Verneilh's description of its style is perplexing, and it is a most singular thing that it should have been accepted up to the present day by all French writers, including even Viollet-Le-Duc. As you are all doubtless aware, in front of the west end of St. Mark's at Venice stands the famous campanile. De Verneilh assumes that as the five-domed church of Saint-Front was copied from St. Mark's, so also the tower was copied, and was therefore Byzantine. But the campanile at Venice was built in 902—160 years before the domes of St. Mark's were built, so that he has no right to assume that it was copied, like the church, from a Byzantine model. There is, however, a still more cogent reason against his assumption—there was no bell-tower in Constantinople to copy. Later on in his work, De Verneilh, finding that there were no analogous bell-towers in the East, remarks that if the Byzantine architects had required such features, they could not have done better than copy the tower of Saint-Front. Finally, he winds up his description by saying "that the "bell-tower of Saint-Front is the "most ancient example in France, "and, it may be said, *the only Byzantine bell-tower in the world.*" But not only is the tower not Byzantine, either in its form or in any of its details, but it is in its design distinctly opposed to the principles of Byzantine art. The Byzantine artists never employed columns except for constructional purposes, and the Roman method of breaking up the surface of their walls with pilasters and semi-detached shafts with their capitals was never imitated by the Byzantine architects after they had freed themselves from the trammels of Roman art in the fifth and sixth centuries. The design of the tower is Romanesque, and its principle of decoration is copied from the superimposition of orders decorating the Roman amphitheatres, of which there still exist the remains of an important example in Périgueux itself.



Drawn by T. Garratt.

FIG. 13.—CAPITAL AND ARCHITRAVE, SAINT-MICHEL D'ENTRAIGUES.

To the west of this tower, and between it and the west front, are the remains of another structure, the date of which is unknown. It consists of four huge piers enclosing a square space, which, there is no doubt, was vaulted with a dome. This may either have been the first *motif* in the restoration of the old church after the fire, before a reproduction of the plan of St. Mark's was thought of, or it may subsequently have been added to form an entrance-porch to the new five-domed church; for in building the great tower they carefully preserved the

passage through, and the principal entrance seems always to have been through the old church.

Having now given my reasons for attributing a much later date to the erection of the five-domed church of Saint-Front, viz. subsequent to the great fire of 1120, a new task is imposed on me. There is no doubt that many large churches, such as those of Angoulême and Fontevrault, were built in the beginning of the twelfth century, and consequently there must have been some other model for them, for it is not likely that such important structures would be the first attempts in that direction. This was the problem which puzzled me in 1892; and it was only solved, in my mind at all events, last year, when I visited Périgord. The results of my researches are very different from what I had anticipated. It must be remembered that the supposed Byzantine origin of the domed churches in Périgord rests on two assumptions: (1) *That the five-domed church of Saint-Front was built between* 984 *and* 1047, *and was copied from St. Mark's, Venice, the latter being based on the church of the Holy Apostles in Constantinople, and therefore an Eastern importation.* (2) *That it was the five-domed church of Saint-Front which served as the model for all the domed structures in Périgord and the Charente* — though, curiously enough, as some archæologists have remarked, they never seem to have copied the plan; for Saint-Front is still the only domed church in France with the Greek cross for its plan. Transepts were added, as at Angoulême, in order to afford additional accommodation for altars, but the plan there is that of a Latin cross.

FIG. 14.—CAPITAL AND ARCHITRAVE, S.E. APSE, SAINT-FRONT.

Now the conclusions I have come to are these:—

(1) Domed churches were erected in Périgord early in the eleventh century.

(2) The construction of their domes and pendentives is entirely different from that found in Byzantine structures,* and is, so far as I can ascertain, indigenous to the country.

* I might here point out that the Byzantine influence which was exerted in France and Germany from the sixth to the twelfth century is, with the exception of a few doorways and windows, *almost entirely confined to decorative sculpture.* (The brick courses in ancient French churches are of Roman origin.) In the *construction of vaults and arches I know* of only one example in France, the dome of the chapel of Saint-Ferreol in the church of Saint-Honorat (île de Lérins), on the Mediterranean coast; and of two in Germany, viz. at Aix-la-Chapelle and in the small chapel of St. Bartholomew, situated about sixty yards to the south of the cathedral of Paderborn. Curiously enough, in the latter

(3) The plans of these early churches consisted always of a nave without aisles, and with one, two, or more domes, built in a line running east and west, but not always of the same size.

(4) The vaulting of these churches with domes is only a variation from the ordinary barrel-vaulting of the South of France, and was adopted because the builders thought they could be built with less material than those with barrel-vaults, which required thicker walls or other equivalents to meet the thrust throughout their whole length.

(5) The domes of Saint-Front were built in accordance with the tradition of the country, with pointed arches, winding pendentives, and ovoid cupolas, and the plan only of St. Mark's was copied with other features up to the springing of the arched structure.

If I am able to prove these conclusions, it follows that the theory of the direct Byzantine origin of these domes in France falls to the ground.

I think my best course now will be to take up the second of these conclusions, viz. the construction of the Périgord domes, the peculiar nature of which has never, so far as I know, been clearly explained. Viollet-Le-Duc's drawings are inexact, and his conclusions are not borne out by the facts. In justice to his memory I ought to say that, when he visited Périgueux for the second time (two years before his death), he told M. Lambert, the architect-inspector of the works, that he had misunderstood the structure, and he promised to correct his statements in the new edition he was preparing of his *Dictionnaire raisonné*. This was never published, as he died before it was completed.

Between the French dome and the Byzantine dome there seem to me to be six very important differences: —

(1) Pointed arch-vaults carry the French pendentive; circular arch-vaults the Byzantine.

(2) The earliest French pendentives and those of Saint-Front are set out on the intrados of the arch; the Byzantine pendentive is set out on the extrados.*

(3) The pendentive in vertical section is a curve of double flexure in the French domes; in Byzantine domes it is part of a sphere.

(4) The earliest French pendentives are built in courses with a horizontal bed, and each course is horizontal. The Byzantine pendentive has sometimes horizontal and sometimes arched courses; the beds, however, are not horizontal, though they are not always normal to the curve.

(5) The French dome is set back behind the string-course which crowns the pendentive.†

(6) The French dome is ovoid, and not spherical.

1. The use of the pointed instead of the circular arch was probably first suggested on account of the tendency to sink, inherent in the crown of the latter. There was, however, a second reason which was pointed out by Fergusson forty years ago, viz. that as the French builders desired to protect their vaults externally by laying the roofing tiles direct on the vault, less dead weight was required on a pointed than on a circular vault. The same object probably dictated the choice of an ovoid instead of a spherical cupola. In St. Mark's at Venice and in the larger Byzantine examples the domes are covered with lead, which was laid direct on the dome or vault without any filling-in.

2, 3, and 4. The setting-out of the pendentive on the intrados instead of the extrados of

case, only the vaulting is Byzantine; the capitals are very early debased Romanesque, which show that masons, and not artists, were employed. The chroniclers of Charlemagne state that there are only two buildings in Germany on which Greek workmen were employed, viz. the tomb at Aix-la-Chapelle and the chapel at Paderborn, in the latter case "per grecos operarios" brought over by Archbishop Meinwerke in 1020.—R. P. S.

* At least, primarily so, part of the voussoirs is occasionally buried in the pendentive, just as part of a rib is carried behind the web. In smaller domed vaults, such as in those of the aisles of St. Sophia at Constantinople, the rib is entirely buried in the cupola, and the vault rests on a skewback. The same construction is found in the chapel at Paderborn just referred to.—R. P. S.

† This remark refers to the great domes of Périgord only.

the arch is one of the most peculiar features of construction I have ever met with. I have searched diligently through M. Choisy's *L'Art de bâtir chez les Byzantins*, and I can find no example of large size which approaches it. Centering was provided for the main arches, but not for the pendentives; it was not required, because they were built in horizontal beds. It was necessary, however, to set out a guide line for the curve of the pendentive proper, and of the voussoirs which in these French domes formed part of it. Whether it was found more convenient to provide a vertical or horizontal guide line I do not know; but, as *every horizontal section through the pendentive was part of a circle, the centre of which was in the axis of the dome*, the latter would probably have been found the simplest. There is no difficulty whatever in setting it out; the intrados of the two contiguous arches are the guides, and a curve struck at any level with the centre in the axis of the dome determines its extent. The vertical section through the diagonal of the pendentive gives a line of double curvature, the nature of the double curvature depending on the distance between the two centres of the pointed arch. In the first dome of St. Stephen's the distance is about 12 inches to 18 inches only, in the second 30 inches. In Saint-Front, before the restoration, I calculate it to be 5 feet 6 inches. The double curvature is much more marked in Saint-Front, therefore, than in St. Stephen's.

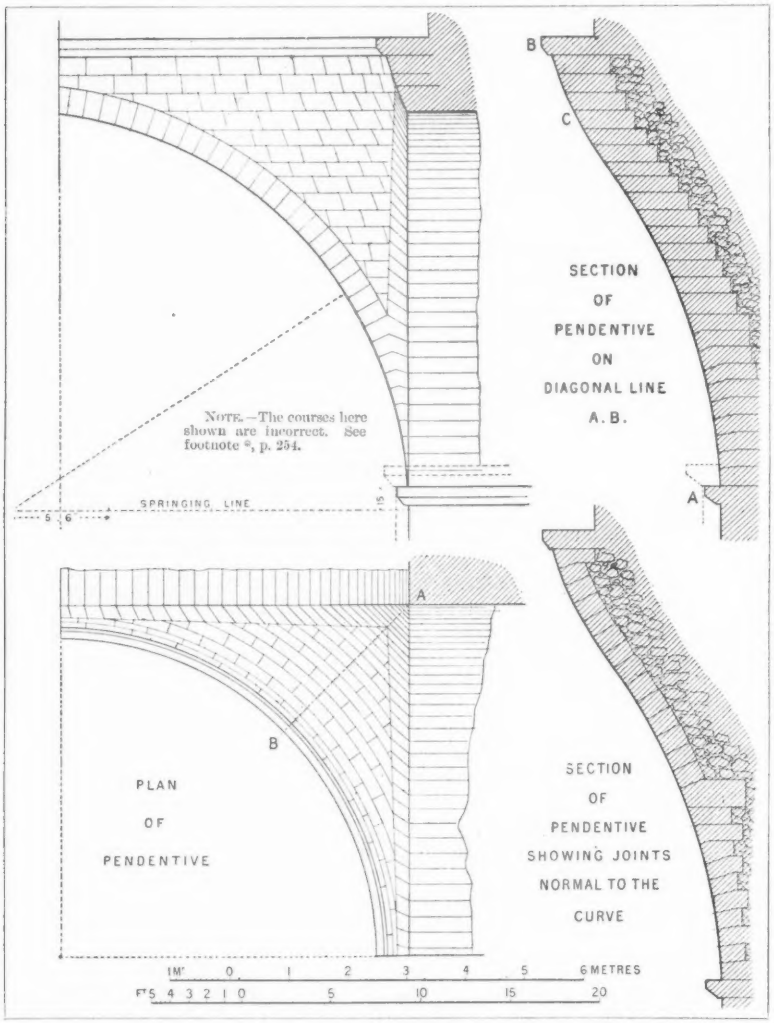


FIG. 15.—SAINT-FRONT, PÉRIGUEUX, PRIOR TO ITS RESTORATION.

This accounts, however, only for the curve up to the soffit of the keystone; above that it

was left to the mason to determine at will. As a rule, the return curve was continued up to the string crowning the whole pendentive. In one of the domes of Saint-Front, however, viz. the western dome, there is a distinct bend outwards on a line with the apex of the voussoirs. This, I was informed by M. Lambert, existed in the original dome, and was set back [fig. 15] to obtain more light because of the tower on the west side. The height to which the pendentive is carried above the voussoirs of the arch varies in Saint-Front—one, two, or three courses being found.

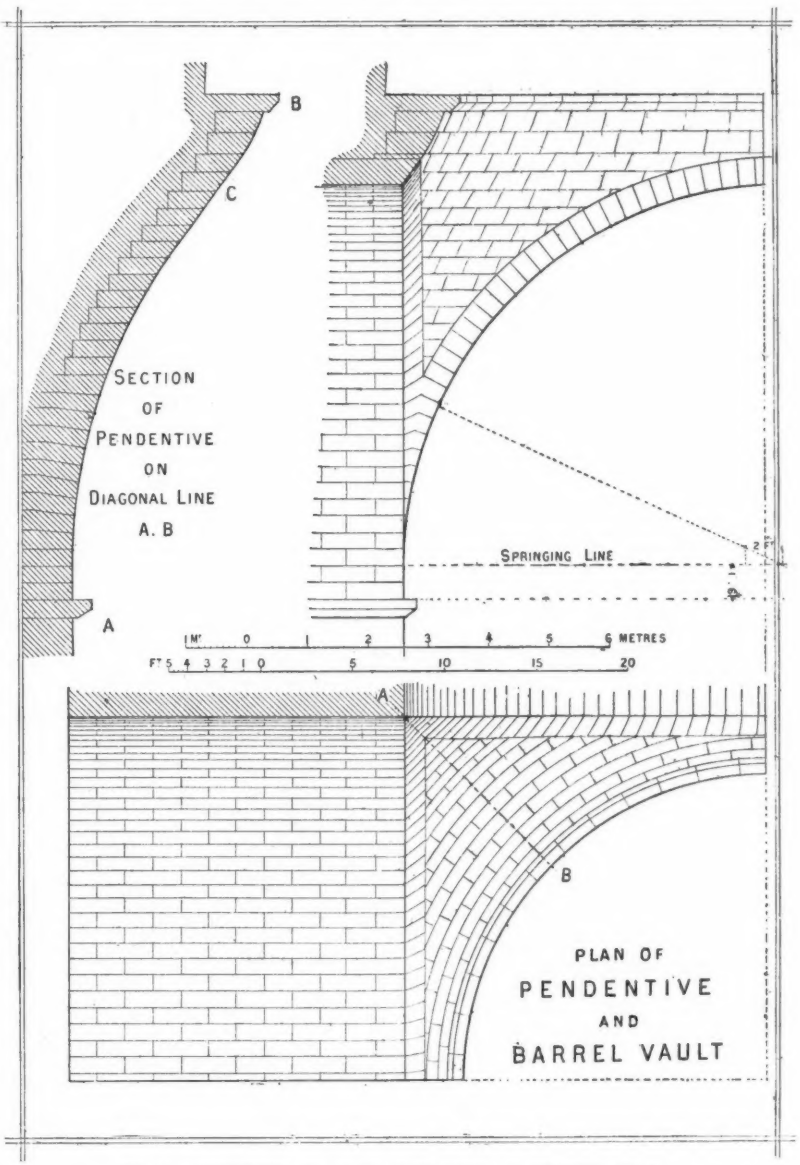


FIG. 16.—PENDENTIVE AND VAULT, SAINT-FRONT, AS RESTORED 1856-71.

I have already stated that in the original barrel-vaults of Saint-Front the springing of the pointed arches was about 15 inches below the impost moulding crowning the rectangular piers, and the pendentive commenced at the impost level. When the four central piers were enclosed in a casing, about 9 inches thick, the new impost was raised about 12 inches [fig. 15]. Apparently, therefore, the springing of the four arches carrying the central dome was 27 inches below the top of impost, and it was

this which increased the "debased" character attributed to it by Abadie. The lower eight voussoirs * of the arch were all laid with horizontal beds, forming what is known as the *tas-de-charge* (horizontal pile) in French vaulting. The *tas de-charge* † is found in all the early domes, and varies from six to eight courses, according to the size of the dome. In the church of Saint-Front, as restored, there are only four courses with horizontal beds in the central and east dome above the springing, and five courses in the western dome. The distance between the centres of the pointed arch in the original church was (so far as I have been able to calculate it from drawings and illustrations made before the restoration) 5 feet 6 inches. In the restored church the distance is only 2 feet [fig. 16]; and as the soffit of the keystone has been rounded off, the arch has almost an elliptical curve. The curve of double flexure, therefore, is scarcely apparent in the new work.

The filling-in of the pendentive between the voussoirs begins above the tenth voussoir; above that, probably, the first three courses would be laid on horizontal beds. Above that, the beds of the pendentive of Saint-Front are either laid on horizontal beds or are normal to the curve. Those of St. Stephen and all early domes have horizontal beds. There were three pendentives with horizontal beds in Saint-Front—two in the east and one in the north—the others had their beds normal to the curve. I asked M. Lambert the reason for this, and he stated that apparently they found they could carry on the work quicker and with less material in the ashlar blocks with beds normal to the curve of the pendentive, provided the blocks in each curve were temporarily supported (for no centering was employed for the pendentives), and in the upper courses there were holes in the back of the stones which suggested that they had been suspended until the course was completed.‡

In the pendentives which I have just described, as the arch forms part of the pendentive and the curve is carried up above the extrados of the arch, it follows that the voussoirs at the apex lean over towards the centre. For some reason or other this did not appeal always to the taste of the masons or of their directors, and in the second dome of St. Stephen's we find another method. The voussoirs at the apex are kept vertical, the lower portion still forming part of the pendentive. This gave a peculiar winding line to the extrados of the arch, which was far from pleasing, and it seems to have troubled the masons more than the setting out of the first system, to judge by the irregular construction. It was nevertheless employed from time to time even in the Charente domes. The third method would be to make both apex and springing in a vertical plane, in which case we return to the ordinary method of carrying pendentives, viz. on the extrados of the arch, excepting, of course, that in France the arches were always pointed. They do not seem, however, to have liked the junction of the curve of the pendentive and the vertical face of the arch, so that in Roulet and Rioux-Martin they carry a hood-mould at the intersection. I ought perhaps here to state that in the course of the development of the style an additional rib or order was provided under the main arches, and this is found in all the Charente churches, except in the west dome of Angoulême. We see in the Charente a fusion between the systems employed in the barrel-vaulted churches and in the early domed churches, in order to get rid of the enormous piers in the latter. The architect of Saint-Front seems to have steered between the two: he adopted the simple arch-vaults and great piers of the first dome of St. Stephen's, but he lightened and gave greater elegance to his piers by forming openings in them, in imitation of those of St. Mark's, Venice.

* The eight beds of the lower voussoirs are incorrectly shown in the diagram [fig. 15], both in elevation and section; up to a height of about 7 feet (D), or one-third of the height of the arch, the courses are all laid with horizontal beds, and this is the proportion generally followed for the *tas-de-charge* in French vaults. The reverse curve commences about 3 feet below C, the level of soffit of keystone.—R. P. S.

† Indicated by dotted lines on the diagram [fig. 15].

‡ I contributed an article some years ago to THE R.I.B.A. JOURNAL, Vol. IV. N.S. pp. 256, 282, in which I pointed out that in Persia down to the present day they build their stalactite vaults in this way, the source of my information being Mr. Purdon Clarke.—R. P. S.

5 and 6. The domes in Périgord are set back distances varying from 18 inches to 3 feet behind the string crowning the pendentives. In the East the dome or lantern is either a part of the same sphere as the pendentive, as in the cupolas of the Golden Gate at Jerusalem; is raised, being struck from a higher centre, as in St. Sophia, Constantinople; or surmounts a drum; in all cases there is no setting-back.* In Saint-Front, as rebuilt, the dome is ovoid, and from the nature of its covering must always have been so. It has, however, I think, been raised, and the lower courses up to the level of the cornice of the lantern outside are all built with horizontal beds. All the early domes were built with centres, with stones of small dimensions and with their soffits plastered. The imprint of the planks which formed the centering is still visible in St. Stephen's, and it is clearly described in De Verneilh as existing in Saint-Front before restoration; the cupolas now are all built in ashlar in 9-inch courses.

I have now to return to the first of my conclusions, relative to the existence of domed churches early in the eleventh century.

The earliest dome in France I am acquainted with is found in the church of Germigny-les-Prés, already alluded to, built in 806. The north and south-east bays of the aisles, measuring about 7 feet 4 inches square, are covered with cupolas resting on squinches. The lower portion of the tower of Brantôme, near Périgueux, is vaulted with a dome so original in its construction, and so unhesitating in its execution, that it must have been the result of many previous trials [figs. 17, 18, 19]. The upper portion of the tower (very remarkable in its design) dates from the eleventh century, but the masonry of the substructure suggests an earlier period. It is built over an oratory much more ancient in its foundation, and may therefore possibly have been erected in the tenth century. In the centre of each side of the square chamber within the tower projects a pier; from pier to pier arches are thrown, which in plan form a circle. Above these arches is carried an ovoid dome, the lower courses of which have probably a horizontal bed, as the upper portion is built in spiral courses.† The soffit of the arched vault is built with ordinary intersecting barrel-vaults.

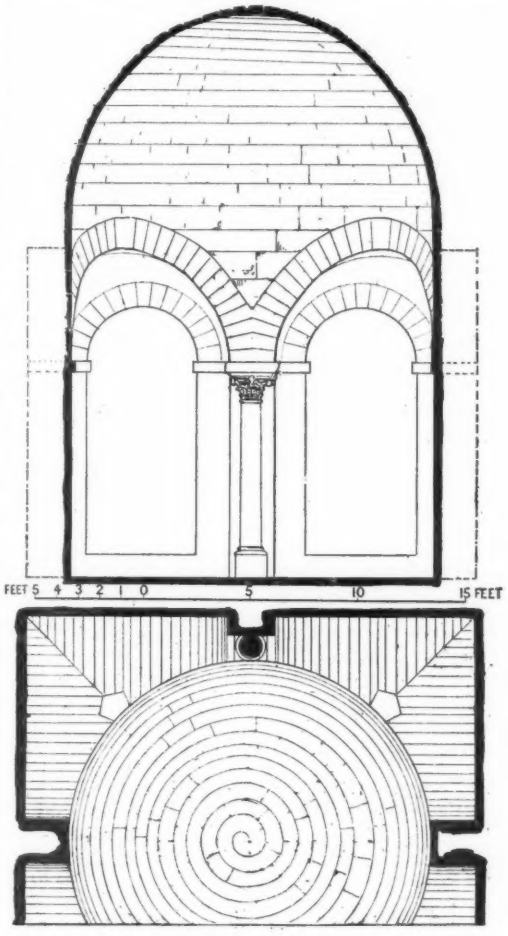


FIG. 17.—PLAN AND SECTION OF CHAMBER IN TOWER, BRANTÔME.

* There is one exception to be made, however; the first dome of St. Stephen's is not set back. There is not sufficient of it left to decide whether it was ovoid or not.—R. P. S.

† The dome of San Vitale is built in spiral courses, necessitated by the nature of the construction, which consists of earthen pots used for the sake of their lightness, and the foot of one pot is fixed in the mouth of the pot preceding it. Here, in Brantôme, I imagine the spiral form was adopted to dispense with centering.—R. P. S.

Whatever the date may be, it suggests at all events that the erection of domes was not at that time unknown in the South of France. Three of the piers had originally an ancient column and capital in front: of these only one remains.

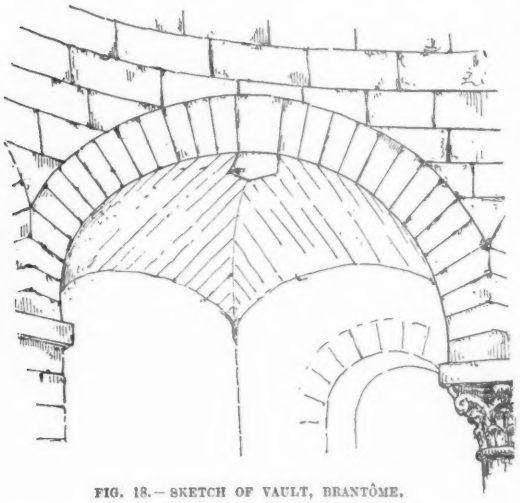


FIG. 18.—SKETCH OF VAULT, BRANTÔME.

There is another dome at Saint-Martin, Angers, which forms part of the rebuilding in 1020 of the church founded by Hermengarde in 819. It is a portion of a perfect sphere, and the lower part of it, viz. that which is known as the pendentive, is set out on the intrados of the arch—this time a circular arch. The date of this dome (1020) is later than those I have mentioned; but it proves that domes, even in Anjou, were not unknown, and the perfection of its construction suggests that it was by no means a first attempt.

The first domed church actually dated is that of Saint-Astier, nine miles distant from Périgueux [fig. 20]. The domes no longer exist, but the immense piers in the interior, similar to those of St. Stephen's, Périgueux, leave no doubt as to their having been erected to carry domes. The church was commenced early in the eleventh century, and dedicated in 1013. The dome of the first compartment was replaced by a ribbed vault in the thirteenth or fourteenth century. It may have been built on circular arches. The second dome was raised on pointed arched vaults, and the upper part of the south wall still exists under the roof, with the chase 6 inches deep, into which the pointed barrel-vault was built in. I am inclined to the opinion that the first church, dedicated in 1013, had only one dome, and perhaps a porch or narthex, which may have had a tower over it. If this surmise be correct, it follows that the custom which prevailed afterwards of having a series of domes originated in the desire to increase the size of the church. The second dome was replaced by a barrel-vault, I think, in the seventeenth century.

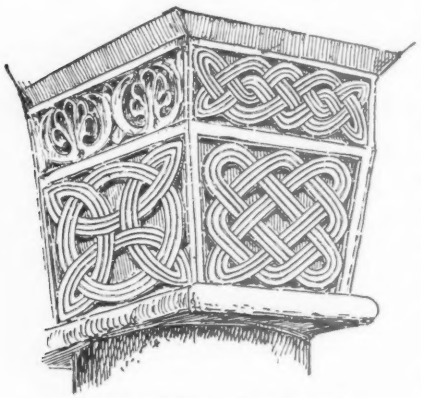


FIG. 19.—CAPITAL IN BELFRY, BRANTÔME.

The church of St. Stephen, Périgueux, is the second example: it was commenced in 1013, and dedicated in 1047 as the cathedral of Périgueux, on the same day as Saint-Front. Of the western dome only a fragment remains, sufficient, however, to determine its dimensions and design* [fig. 21]. The second dome is still intact. Here, again, the fact that the latter is larger than the first,

* It should be noted here that in the elevation given of the fragment of the west pendentive [fig. 21] the appearance of the arch is semicircular, and its height being less than half the width, the centre would be below the impost moulding; but as a matter of fact the centre voussoirs have sunk, owing probably to an attempt to cut off their projecting portions. Inside, however, the arch is pointed, the distance between the centres being about 15 to 18 inches, and their level about 12 inches below the impost moulding. Owing also to the great weight of the superimposed wall, the haunches have risen slightly, which makes it difficult to determine the exact original form of the arch.

and not quite in the same axis [see fig. 9], suggests that one domed bay only was contemplated in 1014; but as the basilican church of Saint-Front increased in size, a second bay with dome was added to the first one of St. Stephen's, in order to rival the twin church. Towards the end of the twelfth century a third dome of advanced style and greater elevation was added. A bell-tower of considerable size is shown in Belleforest's *Cosmographie Universelle*, 1575: this stood on the west side of the first dome mentioned. It is of similar design to that of Saint-Front, but without the pilasters and semi-detached shafts. Instead of the cupola lantern, it is crowned with a spire with marked entasis, pierced with small openings.

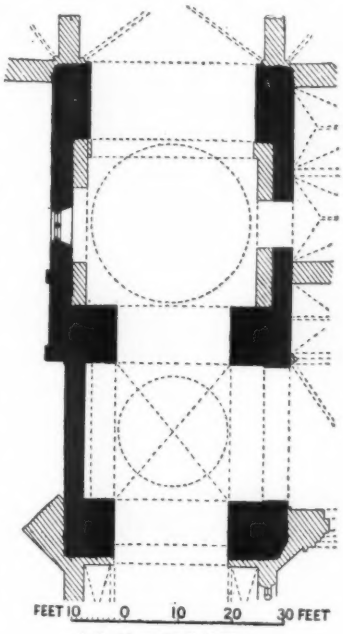


FIG. 20.—SAINT-ASTIER.

A third church, that of Saint-Silain, existed at Périgueux, but was destroyed during the Revolution: it is not actually known whether it had domes or not. It was 100 feet long by 57 feet wide, which would allow only of two domes; but it may have been a basilican church like Saint-Front.

The church at Brantôme, contiguous to and on the east side of the tower before referred to, was built between 1050 and 1080. According to De Verneilh, who saw the building before it was restored, or rather rebuilt, by Abadie, it had two domes, the western dome, contrary to the custom, being the larger. All the masonry is now absolutely new, inside and outside; but although I could distinguish where the domes might have been, and could recognise that the plan of the church had been governed by the foundations, I am not able to give any further evidence.

The church of Saint-Jean-de-Cole was built about 1086. It has only one dome, but larger than any of its predecessors, being 46 feet in diameter.

The church of Saint-Avit-Sénieur dates probably from the end of the eleventh century. It consists of a nave which was vaulted with three domes in succession, the eastern dome being probably the first built, on account of the size of its piers. The domes and pendentives exist no longer, having been replaced in the thirteenth century by ribbed and barrel vaults, built on the old piers, which still remain intact.

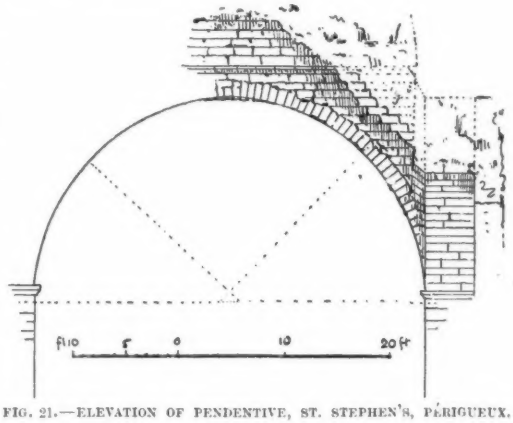


FIG. 21.—ELEVATION OF PENDENTIVE, ST. STEPHEN'S, PÉRIGUEUX.

Then we have a series of smaller churches, with domes varying from 16 to 21 feet in diameter:—Tremolac, in the form of a Latin cross, with three domes over the nave and one over the crossing; Bourdeille, with three domes and an apse; Peaussac, with three domes; and Le-Vieux-Mareuil, with three domes and a square apse. All of these

A pointed arch, however, the height of which above the impost is less than half the width, must have its centres below the impost, unless there were four centres; this, however, would not accord with what remains of the pendentive on the south-west side. The elevation of this arch has been worked out from a large photograph by M. Robert, the photographer to the Bureau des Monuments Historiques.—R. P. S.

examples show the gradual fusion between the domed churches and those with barrel-vaults. The huge piers of Saint-Astier and St. Stephen disappear, their places being taken by external and internal buttresses; that is to say, the thrust of the main transverse arches is brought well within the walls by piers, with arches thrown longitudinally from pier to pier. The small size of the domes doubtless enabled the builders to adopt this system in place of the huge piers; but Saint-Avit-Sénieur, with its two western domes 38 feet in diameter, already shows the change. Owing possibly to the diminution of the piers, in this instance the domes fell down in the thirteenth century. Of Saint-Amand-de-Coly I have no plan, and can find no description. There would seem to have been only one dome over the crossing; its pendentive belongs to the first method, and, owing to the fact that the arches carrying it are more than usually pointed, the double curvature of the pendentive is very marked.

In the parish church of Saint-Emilion (Gironde) the second and third bays of the nave are covered with domes, which still exist in fair preservation. The pendentives belong to the first method, but the upper voussoirs lean over only to a slight extent.

Of churches with large domes, the churches of Cahors and Souillac, both on the south-east of Périgueux, are of early date, judging from their plan. Cahors was consecrated in 1119. It consists of two large domes fifty feet in diameter, and a semicircular choir, with three apses of later date. Souillac has the plan of a Latin cross, with two domes over the nave, one over the crossing, barrel-vaults over the transepts, and a semicircular choir with three apses, two other apses with polygonal external walls being on each side of the transepts. This church, as also that of Solignac, near Limoges, retains the simple piers of the older type of church, though the latter was not consecrated till 1143. The pendentives of Solignac belong to the third method, that is to say, the arches lie in vertical planes. This result, however, is obtained by having four independent pendentives in the angles, each with a radius about three-fourths of the usual dome radius. The horizontal plan of the upper portion of the pendentive consists of four circular angles joined by straight lines over the top of the arch voussoirs. The cupola carried above follows the same irregular curve.

Early in the twelfth century a new feature is introduced, viz. the addition of an extra rib under the principal arches, forming a second order; this rib being universally carried on coupled shafts with Romanesque capitals. The first introduction of this rib would seem to have been made in Fontevrault, commenced in 1101, and consecrated (so far as the nave with its four domes is concerned) in 1119. The domes are gone, but the piers and foundations still remain as evidence of their existence. Whether the setting-out of the pendentive is based on the first, second, or third method I do not know. De Verneilh gives a section, but as he never seemed to recognise any distinction between them, and always indicates the third method, even in Saint-Front and St. Stephen's, which we know to be wrong, his sections cannot be depended upon.

Now all the early domes, viz. those in the churches of St. Stephen, Périgueux, Saint-Jean-de-Cole, Saint-Avit-Sénieur, Cahors, Souillac, and Solignac, are all coated with plaster so far as their pendentives are concerned. Whether that was due to the fact that their construction was of a primitive and tentative character, such as we see in St. Stephen, I do not know. When we come to the domed churches of the twelfth century we find that they are all executed, so far as the main barrel-vaults and pendentives are concerned, in ashlar masonry. The tradition of a century enabled the builders to set out their work with precision, and there was no longer any need to mark the irregularities of the masonry with a coat of plaster.* The cathedral of Angoulême was rebuilt more or less by Abadie. Ashlar

* I have not seen Fontevrault, and from the fact that the nave is used as a prison, neither Parker nor Petit was able to get access to it.—R. P. S.

masonry, however, is shown in Thomas Allom's drawing made in 1846; and the setting-out of voussoirs and pendentives belongs to the first method.

There seems to be some difference of opinion about the actual date of the western dome of Angoulême Cathedral. De Verneilh claims it as built in 1017 in imitation of Saint-Front. Sharpe, Parker, and Petit state that it was rebuilt in 1130, with the other portions of the nave. There is no doubt, however, that the west dome partakes of the earlier character of the plan, and the size of its piers proportionally accords best with those of Saint-Avit-Sénieur. I should be inclined, therefore, to ascribe its erection to 1120, when they began to

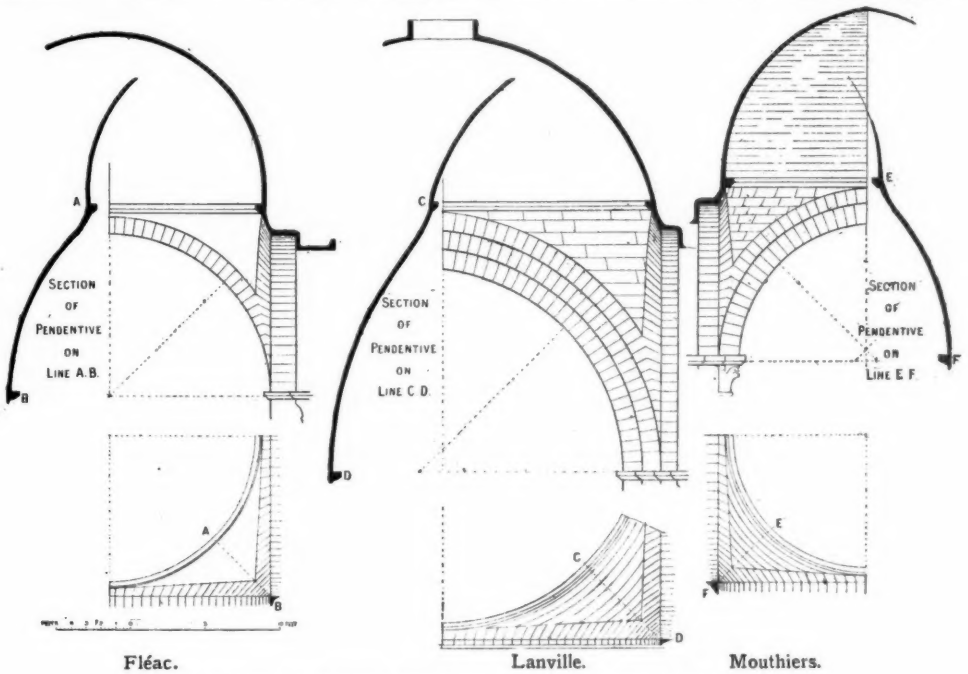


FIG. 22.—THE LA CHARENTE PENDENTIVES. (From measurements by Mr. T. Garratt.)

rebuild the church.* The other bays all have the extra rib and coupled shafts which mark the transition from the earlier to the later development.

According to De Verneilh, the third dome of St. Stephen's was rebuilt in the second half of the twelfth century. Here the extra rib is found, and the whole is constructed in ashlar masonry. The domed churches of the Charente have been so fully illustrated in the Sharpe Memorial that it is not necessary for me to do more than refer to that work. The churches were all built in the twelfth century, and therefore possess the extra rib. With the exception of Angoulême this rib is carried on a single shaft, and not on double shafts. Domes and barrel-vaults are employed indiscriminately, as also the three methods of setting out the pendentives. Thus in Fléac,† Lanville, Mouthiers [fig. 22], and in the second and third

* It is possible that it is this western dome which constituted the original church, and the design of which they desired to preserve.—R. P. S.

† It is interesting to note that in Fléac the domes are carried on circular arches. Up to the level of the intrados of the keystone, therefore, the pendentive forms part of a sphere; above that, there is a curve back which suggests that in all those domes where the cupola above starts from the same line as the upper part of the pendentive they decided to continue the curve. Thus in the early dome of St. Stephen's, and the three domes of Charente—viz. Fléac, Mouthiers, and Lanville [fig. 22]—the curve is continued. This is never found in Byzantine domes.—R. P. S.

domes of Angoulême, the first method is adopted; in Gensac, Châtres, and Roulet, and possibly in the west dome of Angoulême, the second method; and in Trois-Palis, Saint-Quentin, Berneuil, Bourg-Charente, Saint-Amand-de-Boixe, and Plassac, the third method.

The cathedral of Angoulême was consecrated in 1130. Consequently, if the date which I ascribe to the five-domed church of Saint-Front—viz. after the great fire of 1120—be correct, it follows that whilst the former was being completed, the latter may have been rising from the ashes of the old church. A comparison of the sculptured ornament at Angoulême [see an example from the west front, in the headpiece p. 233] with that of Saint-Front would suggest even a later date for the latter. At Angoulême the details are much more influenced by Byzantine work. The nearest approach in the style of ornament which I find to that of La Charente is a capital in Saint-Michel d'Entraigues (1137) [fig. 13], and this is pure Romanesque work of similar character, *though earlier* than the work in Saint-Front.

The execution of the ashlar work in Angoulême and Saint-Front would seem to have been of the same quality, but in the design of the former we find the extra rib which was not employed in the latter. There is no doubt that in the absence of this rib which marked the development of the style in the twelfth century, and in the return to the huge square pier which characterised the domed churches of the eleventh century, we find two of the reasons which have inclined the advocates of the early date for Saint-Front to accept De Verneilh's theory. I have already pointed out, however, that in Solignac and Souillac, consecrated in 1143, the same characteristic existed, and we have also to take into account two important factors—first, the absolute *dissemblance* between the plans of Saint-Front and those of all the churches I have described, and numberless others in La Charente the plans of which are published in the Sharpe Memorial; and, secondly, the extraordinary *resemblance* in plan, design, and dimensions between the five-domed churches of Saint-Front and of St. Mark's, Venice. These are described in such detail by De Verneilh that there is no necessity for my entering further into them. There does not seem to me to be any doubt that the master-mason of Saint-Front went to Venice, measured the church of St. Mark's, and reproduced it, so far as the plan and general design were concerned. When it came to the execution of the pendentives and the domes, there was no reason to copy those; for more than a century domes had been built in France in a manner peculiar to the French masons, and if they returned to the early method of constructing pendentives as shown in St. Stephen's, and to the square piers, it was because they accorded better with the treatment of the walls as adopted in St. Mark's; they also lightened the piers by forming openings in them as in the same church. In the execution of the decorative work in the capitals, corbels, &c., the Romanesque style being already fully developed in the South of France at that period, there was no necessity to bring over Byzantine artists to assist them in that direction. In fact, so high a value did they place on the artistic qualities of their own French sculptors that they seem to have avoided any of that distinct Byzantine influence—influence of that second period which is found in other French buildings, and notably through La Charente up to the close of the twelfth century. It is only necessary to look at the work of Angoulême, Saint-Amand-de-Boixe, Lanville, Roulet, Mouthiers, and other places to find that interlaced work and that V-section of leaves which suggest the lingering tradition of Byzantine influence; and, by comparing it with the capitals, corbels, &c., of Saint-Front, to recognise at once that in the latter there is an entire absence of the same feeling, notwithstanding the singular fact that St. Mark's was the original model on which it was based.

It was in fact this negative quality in Saint-Front which first led to my doubts about the date of the five-domed church. De Verneilh's book, and the Byzantine feeling shown at all events in the beautiful engravings which illustrate it, led me to suppose that in Saint-Front and the early churches of the Périgord I should find the more remarkable examples of the style.

The evidence of the buildings themselves turned absolutely in the other direction, and so far from their being anything Byzantine either in the domed churches or in their decoration, they alone among all French buildings of the eleventh and twelfth centuries contain nothing of the style about them. The French builders of the South of France have always had the credit of being the originators of the barrel-vault, with its stone or tile roof, absolutely incombustible, lying direct on the vault; to them also I contend now we owe the development of the dome, with its pendentives set out in a manner peculiar to themselves, and in no way corresponding to those found in the East.

I have appended herewith a suggested restoration [fig. 23] of the old church for two reasons: first, to show that a considerable portion of it still exists; and secondly, to point out where, in my opinion, the old bell-tower was placed; because, having suggested in my Paper that the existing tower was not built till the twelfth century, over two bays of a nave built in the eleventh century, I am bound to show where the original tower containing the bells melted in the great fire might have been placed.

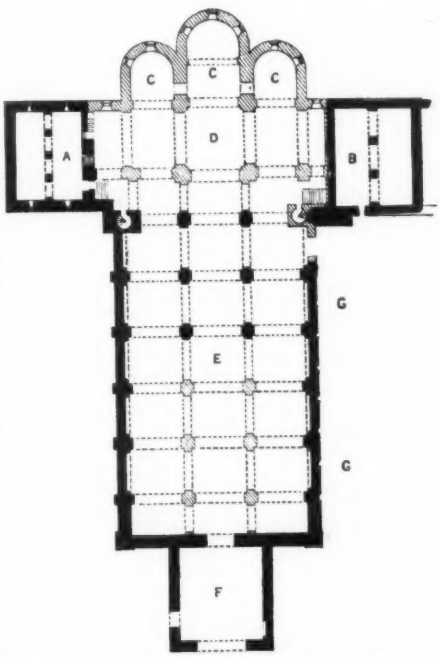


FIG. 23. - RESTORED PLAN OF THE "VIEILLE ÉGLISE," SAINT-FRONT.

A B, Confessionals. C, Apses. D, Tower. E, Nave. F, Porch. G, Cloisters.

The confessionals, A and B, exist still, as also the room over B. The room over A has been removed, displaying the richly decorated south wall, which has been restored, and is now an external feature. The aisle walls, west front, and porch all still exist, parts of the latter being hid in the houses overlooking the market-place. The six piers of nave are now embedded in the tower. They are carefully described in De Verneilh's work, and I gathered from M. Lambert that in the restoration of the tower they were substantially as De Verneilh had described them. The responds of the pilasters on the north and south walls of the aisle gave me the position of the other piers of the nave, and I have assumed that the narrow bay was vaulted with an arch turned in the other direction, over the aisles, so as to resist the pressure of the series of barrel-vaults thrown across the aisles, and at right angles to the nave. A similar requirement at the east end of the nave has suggested another narrow bay. This leaves room for a transept running between the two confessionals of the same width as the nave, and on the crossing I place the bell-tower, this being a position often found in early churches. I may instance the churches of Germigny-les-Prés and Saint-Martin at Angers (819), both already referred to; Louans, in Touraine (1020); Querqueville and Saint-Saturnin, in Normandy, of the ninth and tenth centuries; and of later date, Saint-Savin, Cluny, and Tournus.

The triple apse is found in Sainte-Généroux (Deux-Sèvres), ninth century; Langeais, in Touraine; and in many churches in Italy from the end of the ninth century, so that it was a well-known and recognised feature. These apses at Saint-Front are said to have been built by Eyna, Countess of Périgord, in or about the year 1003. As will be seen on referring

to the plan of the existing building, all the east end of the Latin chancel, as shown in the restoration, was taken down when the western dome was built, so that no traces of it have ever been found. I was informed by M. Lambert that originally the whole floor under the western dome was about three feet higher than the present level, which would suggest that for some religious reasons they preserved the floor of the old church—the five-domed church standing on a lower level. This pavement was lowered in 1580 by François de Bourdeille, Bishop of Périgueux, so that all traces of the original foundations were then removed.

In conclusion, it is known that the nave was covered by a timber roof; I have assumed that the transept would have a similar roof, and under the belfry, as in Germigny-les-Prés, there might only have been a timber floor, so that it can well be understood that in the great and sudden conflagration of such a structure the bells in the tower might easily be melted.

I should not like to close this Paper without expressing my warmest thanks to M. Lambert, the architect-inspector of the works at Saint-Front. Already in 1893 he was kind enough to send me valuable information ; and last year, when in Périgueux, he allowed me to visit the church in all its parts; since then also I have, I am afraid, made his life a misery with my continual questions. My only regret is that the conclusions at which I have arrived as regards the date of Saint-Front are diametrically opposed to his own. I have also to express my thanks to M. Paul Bœswilwald for a tracing, with dimensions, of the domes and pendentives as reconstructed by Abadie, and for other information. I am indebted also to the late Edmund Sharpe for the two illustrations of the exterior and interior of Saint-Front [pp. 238, 239], taken from his own drawings, and made to illustrate his well-known lecture on the domed churches of La Charente, delivered in 1876.

DISCUSSION OF MR. PHENÈ SPIERS'S PAPER.

THE PRESIDENT said that all present must have shared with Mr. Spiers the great pleasure he must have had in going over the ground which he himself had had the pleasure of traversing with him some twenty-one years ago, under the best possible guidance of the late Edmund Sharpe. Mr. Spiers had imparted his views to them with the greatest industry of research and perspicuity of argument. There were one or two other members of the expedition present who would perhaps favour them with a few observations on the subject.

MR. J. S. QUILTER [*F.*] thanked Mr. Spiers for the able way in which he had presented the matter to them, although perhaps they could not all agree with his deductions. He was sorry he did not refer to Edmund Sharpe's opinions with reference to the pendentives; it was a subject that Mr. Sharpe very fully discussed at the time, and in a book on La Charente which was published to his memory. There were still copies of that book in hand, and there was one in the Library. He did not see why Mr. Spiers objected to the expression of one of the French architects, that it was a dome on a dome; it was the lower dome that formed the pendentives starting from the square base, and at a certain point became circular, on which the other dome was started. These were points, however, that involved a great deal of difference of opinion, and he would not enter into them at that late hour. He would conclude by proposing a most cordial vote of thanks to Mr. Spiers.

MR. H. L. FLORENCE [*F.*] seconded the vote of thanks, and said that, to his great sorrow, he had not been fortunate enough to accompany the memorable expedition referred to by the President. He had listened with great interest to Mr. Spiers's Paper, which, with its numerous illustrations and technical points, was somewhat difficult to follow closely. One lesson, however, might be learned from it—not to take everything that one saw, even if it were measured and drawn, for granted. It was evident that many books and publications to which they had pinned their faith for the last quarter of a century, looked at in the newer lights and with the further knowledge gained since that time, would very possibly lead to such very different conclusions as those at which Mr. Spiers had arrived by his careful study. Therefore it showed them that their work was not yet done; they were not to rest content though a building had been already measured illustrated, printed, brought out, and criticised. More careful study and observation, with the knowledge gained from the study of other build-

ings, would probably show that there were many points in a building which had already been measured which might give new information.

THE PRESIDENT, in putting the vote of thanks to the Meeting, remarked that the members of the expedition had been much struck with the very peculiar construction of the pendentives, being, as Mr. Spiers had told them, formed on the intrados instead of the extrados of their circles. His view as to the probable later date of Saint-Front than what was generally supposed, and what was taken for granted on the authority mainly of De Verneilh, was extremely interesting, and he thought Mr. Spiers had proved his point from a comparison of the rough work upon St. Stephen's of Périgueux with that of Saint-Front. It seemed extremely probable that the introduction of the pointed arch into Europe was owing to those domed churches, from finding that the central points of the round arches when loaded were accustomed to fall in, so that the pointed arch was almost a necessity to carry those domes. Of course, the pointed arch, as the late Lord Leighton had pointed out in his admirable addresses to students, did not give them Gothic architecture; but it was most probable that the development of the ribbed vaulted roofs gave them the true Gothic architecture; and the pointed arch was ready to their hand as derived from the supports of those domes. That was an admirable step, he thought, in the history of their art.

MR. R. PHENÈ SPIERS [*F.*], F.S.A., in answer to Mr. Quilter, said he was very well acquainted with the descriptions given in the Sharpe Memorial, and if Mr. Quilter would quote what he had failed to read correctly, he would try to answer it. The principal point that Mr. Sharpe was not acquainted with was what he (Mr. Spiers) had been trying to lay before the Meeting—viz., that the five-domed church of Saint-Front was not built at the beginning of the eleventh century, still less at the end of the tenth. Of course, De Verneilh's difficulty was this: his object was to prove that Saint-Front was the first domed church built in France. But as Saint-Astier was commenced in 1002, it was necessary to put back Saint-Front to the end of the tenth century, which would be quite impossible, owing to the perfection of the ashlar masonry and the style of the capitals. As the "old church" of Saint-Front was hidden behind houses then inhabited, Mr. Sharpe had not the opportunity that he (Mr. Spiers) had of seeing and examining its design and construction. If he had been able to prove to the Meeting that this so-called Latin church was really eleventh-century work, then the five-domed church might be carried forward to any time; it might not have been begun for many years after the fire, and there were records that the bodies of the saints were not brought back till 1171, so that, instead of being the first domed church built in France, it was really the last of any size. Those were the new points. Then there was the question of the setting-out of the pendentive on the intrados instead of the extrados. De Verneilh spent ten years, more or less, in measuring the building which he saw every day; but, unfortunately, not being an architect, he failed to observe during the whole of the ten years the leaning over of the voussoirs at the top, and represented them in his illustrations as vertical. Now, their friends who went to La Charente in 1875 and measured many of the pendentives noted at once this exceptional leaning over of the voussoirs, and the winding forms of the pendentive. Mr. Garratt's outlines, set out on the spot to note thereon the dimensions, showed that at the first glance he had grasped the peculiar construction. In other words, Mr. Garratt saw in five minutes what De Verneilh failed to recognise in ten years. It was possible that the subject might excite more interest in France. Whether the theories put forward would be acceptable to the French archæologists he did not know. They greatly objected to being told that in Saint-Front the early builders had copied St. Mark's at Venice, and always claimed that the church at Constantinople was copied; they might possibly, therefore, be willing to agree that in the construction of their domes they originated a new and remarkable conception.

*** Mr. Spiers has since written:—Mr. Quilter writes to me to say that his remarks were intended to refer to Mr. Sharpe's lecture delivered in 1876, and not to the Sharpe Memorial volume. But an epitome of the lecture was given in the Sharpe Memorial, and the lecture itself, being delivered orally, was only partly reported. I recollect the lecture, and I have no doubt that the conclusions I arrived at as regards the double curvature of the pendentives in Saint-Front, which I noted on my first visit in 1875, were materially advanced by what Mr. Sharpe said. He visited the church in 1834 or 1835, and made a drawing of the interior with a camera lucida, from which the illustration, fig. 3, is taken; but I am not aware that he ever published any geometrical diagrams showing the setting-out of the pendentives.

9, Conduit Street, London, W., 20 *February* 1896.

LORD LEIGHTON, P.R.A.

Some Reminiscences.

I was introduced to Frederic Leighton at Rome, shortly after the Holy Week of 1853, by the late George H. Mason. He was then a light-haired, handsome, dashing young fellow of twenty-two, with fine manners, who let the most brilliant as well as the wisest sayings fall from his lips in his sprightly and animated conversation; in those days he was so gay and light-hearted that when at friends' studios he would often break off his conversation to sing a snatch of an Italian ballad or an air from the opera, and sketch comic idyls in charcoal on their canvases. Out-of-doors he was always dressed in the fashion, even in hot weather, not like the Bohemian students, in brown holland with their coats over their shoulders. He was not only adored but revered by Mason, who asked me if there were any painter equal to him in England. I left shortly after the Holy Week for Naples, but returned before the "Cerbara," or artists' carnival, and used to frequent Leighton's studio, and read bits of Tom Taylor's life of Haydon to him while he was at work. The finished design for "The Procession of Cimabue's "Picture" was already made on a small scale in pencil, and an oil sketch of the colour, and Leighton was making the studies for the figures and drapery. One morning when I was there his model had failed him, and after examining my arms, he asked me if I would put on the silk sleeves of Cimabue for him to draw the folds.

An organised visit of the fashionable English dilettanti was made to Leighton's studio to see his composition of the "Cimabue," and after seeing it they adjourned to someone's rooms to criticise it. Amongst the company was a young and fashionable girl who was asked her opinion, and who replied, "I am no judge of artistic com-"position, but I know that Leighton is the best "waltzer in Rome."

One day I found him drawing the flower of the pumpkin, and he said flowers were quite as hard to draw as human heads if you drew them conscientiously, but doing that rested with yourself, for there could be no critics. He said of drawing that the great thing was to thoroughly understand the structure, and that then by patience and labour you could express the outline and the modelling. In 1859, while at Capri, he drew the celebrated Lemon Tree, working from daylight to dusk for a week or two, and giving large details in the margin of the snails on the tree.

He took the greatest interest and delight in Mason's elaborate compositions in line, and prophesied that this rare talent would some day be appreciated; and he encouraged Mr. Poynter in his desire to be a painter.

Early in January 1854, the full-size canvas for the "Cimabue" was squared up and the painting began, Leighton's plan being to settle on what he meant to paint, and get the composition of line as perfect as possible; then to make a finished pencil drawing for the form, and an oil sketch for the colour, and then studies of the nude figures and drapery; to enlarge the outline drawing to the size wanted, to draw the figures carefully from his studies, and then to paint in each figure in the nude from life, and then the drapery on the figures. Shortly after Easter of 1854 I left Rome for North Italy, and, at Leighton's suggestion, with the late W. Burges, A.R.A.

I did not return to England till the middle of 1855; in this year his "Cimabue" was exhibited at the Royal Academy, and was bought by Her Majesty the Queen. With some of the proceeds he gave commissions to all his poor artist-friends in Rome. I saw him during his flying visits to England, and afterwards at his studio in the Rue Blanche in Paris. There he painted "Pluto and "Orpheus," called, I think, "The Power of Music," his father having sat for the Pluto; and there, I think, he began the "Romeo and Juliet." During this time he paid a visit to Algiers, and painted a large drawing of the frantic dancing he saw there in a Jew's house, as well as two small heads, and a girl with a cat, almost the only drawings in water-colour he ever painted. In 1860 he took a studio at Orme Square, Bayswater. It was during this time that his conversation was so brilliant and so free from restraint. I remember a summer afternoon I spent with him, Mason, and Murch on the terrace at the Crystal Palace, when he gave vent to the freest criticism on books, artists, philosophy, science, and the methods of teaching, and deplored the waste of time to students of making large chalk studies, when everything that was wanted could be shown on a sheet of smooth paper seven inches high, with a hard pencil. He was a great admirer of Boxall and his delicate painting, of Mr. Watts's and Sir E. Burne-Jones's work, and persuaded the last two to join the Royal Academy. In 1864 he was made an A.R.A., and after this he became very cautious of expressing any but the most general opinions on contemporary English art, as his remarks gene-

rally got into the papers. In the following year he obtained a piece of ground next Mr. Val Prinsep's, in Holland Park Road, and had a house and studio built there, which he occupied in 1866. In 1868 he was made an R.A. His studio was lengthened in 1869 for some big canvases. During his visits to Rhodes, to Cairo, and to Damascus he made a large collection of lovely Saracenic tiles, and had besides bought two inscriptions, one of the most delicate colour and beautiful design, and the other about sixteen feet long and strikingly magnificent, besides getting some panels, stained glass, and lattice-work from Damascus afterwards: these were fitted into an Arab Hall, something like La Ziza at Palermo, in 1877.

The love of being surrounded by every kind of beauty was one of the strong characteristics of the man, and doubtless helped him to that catholicity of taste which fitted him for the position of President of the Royal Academy; for in that position every phase of painting, sculpture, engraving, and architecture had to be appreciated and cherished. He was elected President in 1879, and in this dignified position his winning manners and his gift of languages did much to turn the attention of great foreign artists to the merits of the English School. It also gave the weight of a great Body to his recommendation for the removal of the Wellington Monument to the site for which it was intended, and to its completion by the equestrian statue; to his magnificent gift of a picture to the Royal Exchange, and to his advocacy of the British School at Athens, the Egyptian Exploration Fund, and of the various movements for the encouragement of Art started by public bodies or by private munificence.

He gave us portraits, processions, scenes of action, idyls, dramatic pieces, decorative pictures, black and white, and sculpture. Those who loved purity of form, subtilty of composition, a certain stateliness of arrangement and splendour of colour looked forward with eagerness to each exhibition. Few portraits are finer and more powerful than his heads of Sir F. Burton, of Cavaliere Costa, and the ideal head of the Roman Mother; few idyls more delightful than "The "Summer Moon," than the "Shepherd teaching "the little Girl to play on the Flute"; or more lovely than "The Garden of the Hesperides"; few dramatic pictures are more touching than "Electra at the Tomb of Agamemnon"; few more terrible than "Rizpah"; while for subtilty of line "Simœtha the Sorceress" deserves to be cut in a gem to preserve it for ever.

Browning mentioned the "Alcestis" in his *Adventures of Balaustion*, and Leighton is supposed to be sketched in *Lothair* and in *A Week in a French Country House*; but those who knew him well could hardly recognise the portraits.

A truer and stauncher friend never existed, nor one more ready to give advice to those who really wanted it, and even more ready to help distress with his purse. A man with an excellent memory, a splendid orator, with a profound knowledge of the history of Art, and a sympathy with it in every phase; an accomplished linguist, a soldier, and a patriot! A man with a loftiness and nobility of soul, without one smirch of the vulgar, the mean, or the ignoble, that made one seem to be breathing a purer air when in his company!

It is said he has left little behind him but the memory of his good deeds; but he has left a house built for his special requirements, and filled with those things that were needful for preserving his catholicity of taste; in which few great transatlantic and foreign artists have not met with a hearty welcome, and felt the brotherhood of Art.

If Italy can preserve as national memorials the houses of Petrarch, of Boccaccio, of Michelangelo; if Antwerp can keep the house and printing-offices of Plantin untouched, as glorious records of the past; surely England can afford to keep this house untouched, as the great man left it, and with a qualified curator; where his sketches, his studies, and his MSS. may be consulted by students of the future, and where posterity may see how a great artist was surrounded in these days. This was the house in which he lived, and in which he died, and in which he spoke his last touching words, "My love to the Royal Academy!"

GEORGE AITCHISON.

CHRONICLE.

The Prizes and Studentships 1896-97.

Full particulars of the subjects set for the Prizes and Studentships 1896-97, with the conditions of competition and award, will be found in the pamphlet issued to subscribing members with the last number of the JOURNAL. It is unnecessary, therefore, to give more than the following brief indication of the nature of the Prizes and the subjects set:—

The Essay Medal and Twenty-five Guineas.—*Subject:* "The True Value of Tradition and Precedent in Archi-"tectural Design."

The Measured Drawings Medal and Ten Guineas: awarded for the best Measured Drawings submitted of any important building, Classical or Mediæval, in the United Kingdom or abroad.

The Soane Medallion and £100.—*Subject:* Design for a Provincial Market Hall.

The Pugin Studentship (Silver Medal and £40): awarded to the candidate who submits the best selection of his own drawings and testimonials.

The Godwin Bursary (Silver Medal and £40): awarded to any member of the profession who submits the best selection of practical working drawings, or other evidence of special practical knowledge, and testimonials.

The Owen Jones Studentship (value £50): candidates must submit testimonials, with specimens of their drawings showing knowledge of colour-decoration, and compositions in writing exhibiting acquaintance with the leading subjects treated in Owen Jones's *Grammar of Ornament*.

The Tite Prize (value £30).—*Subject*: Design for an Italian Villa and Ornamental Garden.

The Grissell Gold Medal and Ten Guineas.—*Subject*: Design for One Bay of a Church, consisting of Nave and Aisles, vaulted in stone throughout.

The Aldwinckle Studentship (value £50): awarded to the person who, among all those submitting works for the Prizes and Studentships 1896–97, will, in the opinion of the Council, best carry out the donor's intentions.

The Ashpitel Prize (books value £10. 10s.): awarded to the Student who most highly distinguishes himself in the Final Examinations 1896.

The late William Horton [*F.*].

Mr. William Horton, a Fellow of the Institute since 1888, died at his residence at Flixton, near Manchester, on the 14th December last, in his 63rd year. He was senior partner in the firm of Messrs. Horton & Bridgford, architects, of Manchester. The firm enjoyed an extensive and varied practice in Manchester and neighbouring towns, among their more notable buildings being the Conservative Club, carried out in conjunction with Mr. R. Walker [*F.*]; Messrs. Lewis's premises in Market Street, Manchester; the Palace Hotel and Victoria Baths, Southport, &c. Mr. Horton was a member of the Allied Society at Manchester.

Free Lectures on Building, &c.

The Carpenters' Hall course of free lectures on matters connected with building opens on the 26th inst. with a lecture on the Façades of the English Cathedrals, by Mr. H. Heathcote Statham [*F.*]. On the 4th prox. Mr. W. H. Preece, C.B., will treat of Electricity in connection with Building. Professor Banister Fletcher [*F.*] follows, on the 11th prox., with a lecture on "A Nation's "Architecture"; and Professor T. Roger Smith [*F.*], on the 18th, with one on the Decay and Failure of Buildings. The closing lecture on the 25th prox., by Mr. A. R. Binnie, M.Inst.C.E., will deal with Blackwall Tunnel.

The British Museum Excavations in Cyprus.

The excavations in Cyprus carried out during the year 1896 by Mr. H. B. Walters, on behalf of the Trustees of the British Museum, have resulted in a number of extremely interesting and important finds. The region explored, the site of the ancient city of Curium, had already yielded abundant spoil to the excavator. A special feature of the excavations was the discovery of a necropolis dating from the Mycenæan period. It is stated that this cemetery, which lies on the side of a low hill to the east of Episcopi, represents the site of the original Argive, or Mycenæan foundation, and that the city had been transferred to the site now known as the Acropolis towards the end of the sixth century B.C., that being the date of the earliest tombs there. Among the pottery found in the tombs were some specimens of remarkable rarity; in particular, two large vases belonging to a class previously known only by four examples, found on pre-Phœnician sites in Cyprus, and a fragment at Nauplia, in Greece. A sard scarab with Egyptian hieroglyphics, discovered in one of the tombs, has been pronounced by competent authorities to bear the name of Khonsu, a deity introduced into Egypt about the period of the twenty-sixth dynasty (666–527 B.C.). Not the least important of the finds is a small steatite scaraboid on which is an intaglio design of a bull lying down. The workmanship and drawing are described as most admirable and masterly, recalling the famous Vaphio gold cups in the Museum at Athens. Its date is put at about 700 B.C. Other gems include a scarab of Thothmes III., a scaraboid with an ibex, and an archaic scaraboid gem set in a silver ring, representing Herakles running. There are also sundry finger-rings, earrings, bracelets, a gold chain necklace of very delicate workmanship, and various bronze objects. These latest additions to the National Collection are being exhibited temporarily in the Etruscan Room of the British Museum.

It is arranged that the excavations this spring are to be on a new site on the north of the island, and they will be superintended, for a time at least, by Dr. A. S. Murray [*H.A.*], who starts for Cyprus about the 10th prox.

Additions to the Library.

The Secretary of State for India has presented the *Tarikh-i-Rashidi* of Mirza Muhammad Haidar. This important history of the Moghuls of Central Asia has been translated by Mr. Denison Ross, and edited, with commentary, notes, and map, by Mr. N. Elias, H.M. Consul-General for Khorasan and Sistan [London: Sampson Low, Marston & Co.].

The History and Early Development of St. Mark's, Venice, by Mr. Phenè Spiers [*F.*], F.S.A., reprinted from the *Transactions* of the St. Paul's Ecclesiological Society, has been presented by the author. Mr. Thomas Arnold [*A.*] has forwarded *Restoration of the Mausoleum at Halicarnassus*, a reprint of an article which he contributed to *The Builder's Journal*. *British Geology* is the title of another pamphlet received from its author, Mr. T. Mellard Reade [*F.*].

An illustrated pamphlet, entitled *The Signs of Old Fleet Street to the End of the Eighteenth Century*, has been presented by the author, Mr. F. G. Hilton Price [*H.A.*], Director of the Society of Antiquaries.

Mr. Alex. Koch, the editor, has forwarded the supplemental volume of his *Academy Architecture and Architectural Review* 1895, which contains reproductions of drawings not available until the close of last year's Exhibition, a selection of recent designs by English architects not exhibited at the Academy, illustrations of sculpture from the London and Paris Exhibitions, and illustrations of architectural designs for execution abroad.

Architecture, a handsome addition to architectural periodical literature, has been received. The editor contributes a well-illustrated appreciation

of Mr. Norman Shaw, R.A.; there is an article by Mr. A. E. Street [*F.*] on the life and work of his father, the late Mr. George Edmund Street; and Mr. J. Alfred Gotch contributes a preliminary article on the "Renaissance in England."

Mr. G. A. T. Middleton [*A.*] has presented to the Loan Collection a copy of his *Surveying and Surveying Instruments.*

Marble Verde Antico and the Old Quarries.

Mr. Wm. Brindley, F.G.S., whose contributions to the TRANSACTIONS (New Series) on "Marble: "its Uses as suggested by the Past," and on "The Ancient Quarries of Egypt," are of acknowledged value, has forwarded the following:—

The celebrated marble, verde antico, so highly valued by the Romans for decoration, was known to classical writers as "Thessalian," taking its name from the province of Greece in which it was found; also as "Lapis Atracius," the city of Atrax being supposed near. The best ancient description given us of the marble is in the poem of Paul the Silentiary. This, as translated by Messrs. Lethaby and Swainson in *Sancta Sophia*, reads:

> The marble that the land of Atrax yields, not from some upland glen, but from the level plains; in parts fresh green as the sea or emerald stone, or again like blue cornflowers in grass, with here and there a drift of fallen snow, a sweet mingled contrast on the dark shining surface.

This description is very accurate both of the material and locality. Although this stone must have been known to the Romans before the time of Christ, and was without doubt one of the latest marbles worked by the Byzantines, yet on the invasion and capture of Thessaly by the Turks the locality of the quarries became entirely lost. About twenty-five years ago it was announced that the old quarries of verde antico had been found on the Greek island of Tenos; and much of this marble was quarried and sold as verde antico, the marble merchants in England of that time being ignorant of the nature of the real material. The French, when building the Paris Opera House, made considerable search to find various old quarries worked by the Romans, but without any good results as regards verde antico; nor has our advanced geological knowledge of rocks revealed to us any green marble to compare for beauty with this ancient one. The genuine material is easily distinguished from any other green marble by being an ophicalcite breccia, composed of angular pieces of light and dark green serpentines and pure statuary marble, the whole being cemented together with a brighter green, while the marked character is that the snow-white patches have usually their edges tinted off with a delicate fibrous green, which radiates to the centre of the whites. The cementing matrix is also of the same fibrous structure, while a "bluish bloom" pervades the surface.

Ten years ago I visited Constantinople to study the marbles of St. Sophia. When there I became much impressed with the real beauty and great variety of verde antico, for in no other city can such masses of this marble be seen, as not only St. Sophia, but all the other Byzantine churches and mosques are full of columns and slabs, while in the streets are seen huge sarcophagi.

The abundance of this marble here and the absence of certain others which are plentiful in Rome convinced me that the quarries of verde antico must have been conveniently situated for the old Byzantine builders.

As my delight is old quarry hunting, and as I knew the very high price fragments dug up in Rome fetched, I determined to try and find the lost quarries, and see if they were worked out or not. Knowing they were not to be found in the Archipelago, I resolved first to examine the sea coast of Thessaly; but not being able to go that season, I commissioned an intelligent Greek guide in Constantinople, who occasionally went to Salonika and Tempe, to examine the rocks of that district for me. No good results having come out of this, in the following spring I visited Greece, going on into Thessaly to the supposed site of the ancient Atrax; but, alas! when, after much fatigue, I did get there, I found the range of rocks which here cross the Peneus to be only a poor limestone. Returning to Larissa in continuous rain, I noticed that the boulder "pitchings" of this dirty old Turkish city were mostly boulders of verde antico, the same rounded stones being also plentiful in the old houses. Then, finding a very old resident Turk, and inquiring of him where the stones were got, he replied that they were not quarried, but gathered in the ploughed fields of the plain. The watershed to this alluvial district I soon observed was the mountain range of Ossa, and some isolated foot hills distinctly visible from Larissa appearing metamorphic (so promising) I determined to examine them. Being now obliged to leave Larissa, I instructed and paid a French engineer of the roads to employ practical quarrymen to search. This was done twice without any good results. I then sent copies of my sketches of these hills, marking the spots I was most anxious to have examined. The search party went again, and found one quarry, of which particulars and samples were sent me by post. These were very satisfactory. I then began to negotiate for the working of the rock. The negotiations lasted two years, when I was told by my agent that all was agreed. I then went out to Greece again, and visited the rocks myself, when, to my agreeable surprise, I found not less than ten ancient quarries, all of them varying somewhat in character, but producing every shade and variety of verde antico as seen in the buildings of ancient Rome and Constantinople. Some other extremely rare greens, seen in the Vatican and Louvre Museums, which had always been attributed to Egypt, I found had come from these quarries.

Not less interesting were the quarries them-

selves, as showing the ancient methods of working. One large quarry face consists of a series of vertical, almost semicircular hollows, of varying large diameter; a mass in front of this shows smaller hollows—(here no doubt were extracted the monolith columns of St. Sophia, Constantinople, the rough columnar form being rounded as quarried)—these hollows being the matrices allowing room for the workmen to axe round the columns, less at the back, and more at the sides, where the quarryman would stand to work. The shafts would thus be produced standing free from the rock; they would then be severed at the base and lowered over by ropes and wedges, while the projection between the hollows would produce the next row of shafts. The dimensions of the monoliths in St. Sophia are—the eight on the ground floor 25 feet 6 inches long, and 3 feet 7 inches in diameter; the forty on the gallery floor are about 22 feet long and 2 feet 6 inches in diameter. In addition to these special columns there are now remaining over 500 monolith shafts of this marble in the various ancient buildings and museums of Europe.

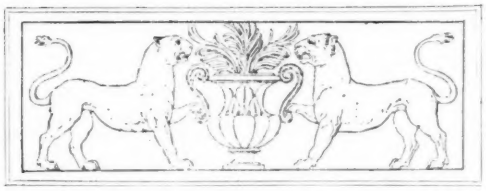
Another quarry contains a block of large dimensions squared up for a sarcophagus. This is still attached by the bottom bed to the solid rock, a passage being cut all round it: this block would make a sarcophagus similar to the three famous ones in Constantinople, one of which is in front of the Pantocrator Church, the other two near the Seraglio. Two or three of the workings have sawn faces, and sawn blocks and scantlings for slabs have the saw-cuts remaining below where they were wedged off. Everything seen in their methods of working points to the minimising of weight for transit.

The quarries are situated at Casambala, about seven miles to the N.E. of Larissa, near the road leading to the Vale of Tempe. There is a village near which is still named Marmariani: this is probably the ancient name handed down as the marble-workers' town, and is thought by Leake to be the site of the ancient Sycurium. The old quarry roads are now mostly grown over. The marble blocks were taken by the Vale of Tempe route over the famous military road cut out of the solid rock by Lucius Cassius Longinus, the Proconsul B.C. 127. The rock-floor of this road shows, by the deep furrows produced by the wheels of the oxen waggons, the large amount of heavy block traffic that must have passed over it to the port of shipment. The rock was probably first known to the Romans about 170 B.C., after the great battle fought with the Macedonians, as described by Livy. Perseus advanced to Sycurium to await the approach of the Romans, as "Sycurium stands at the foot of Mount Ossa, the "southern side of which overlooks the plains of "Thessaly." "Besides these advantages of situa-"tion, the place enjoys a most healthful air, and "a never-failing supply of fresh water from the "springs which lay around." These springs, which come out at the base of the hill, are still of large volume, and are of somewhat warm temperature. The marble deposit, which is about 60 feet thick, appears to lay on a slaty formation, and is overlaid by a thick bed of dark green serpentine. It is impossible to say when the quarries were first worked, but as a Greek Stella, of good classic form (now in the Museum of Larissa), is made of the marble, and as it is found in some of the palaces and baths of the Cæsars in Rome, we may infer they were worked at an early date.

On the rebuilding of Constantinople and the erection of Byzantine churches, Thessalian marble became the material mostly used in architecture for the supporting monolith columns, being no doubt selected for its beauty and soundness; as, being free from "bedding," it was less likely to split under great pressure. From the earliest Christian times until now, the church of St. Sophia has been the most sumptuous and harmoniously coloured interior in the world, its chief beauty being due to its monoliths and slabs of verde antico marble used in contrast with Egyptian porphyry. Some old writers state that the eight immense monolith pillars were taken from the Temple of Diana at Ephesus; be this as it may, they certainly were extracted from these old Thessalian quarries. In addition to all the old churches and mosques of Constantinople, those of Salonica, Jerusalem, and Egypt all contain large quantities of this green marble, and every visitor to Venice must remember the famous group of columns in the façade of St. Mark's, so beautifully described in *The Stones of Venice*. It is to be seen in nearly every church and palace in Rome and every other city of Italy, either in the way of shafts to columns, wall-decoration, or articles of vertu. Perhaps the grandest object in Rome in verde antico is the large *baldacchino* over the high altar of Santa Maria Maggiore: the large canopy is all of this material, and is supported by four columns of Egyptian porphyry.

The Moors of Spain well knew the beauty of this green, as it is seen in their Mosque of Cordova and the Alcazar of Seville. Pieces are plentifully turned up by the plough in the cornfields over ancient Carthage, and Sir Lambert Playfair found it in the Roman ruins of the (Lotus-eating) island of Djerba; in short, all over the Roman empire this marble was taken and used for decoration. On the revival of art in the Renaissance period, verde antico was much sought after; and as none could then be got (except by the destruction of some ancient work), it became precious, and was sawn up into the thinnest slabs and used as a veneer for wall-surfaces, and even large columns were cased with vertical strips.

The Medici family of Florence used it freely for articles of vertu and the decoration of their palaces; since then the French have perhaps been the largest workers of this marble, using it for all sorts of ornamental objects, frequently in combination with ormolu mounts.



MINUTES. VIII.

At the Eighth General Meeting (Ordinary) of the Session, held Monday, 17th February 1896, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 15 Fellows (including 7 members of the Council), 23 Associates, 1 Hon. Associate, and several visitors, the Minutes of the Meeting held 3rd February 1896 [p. 229] were taken as read and signed as correct.*

A Paper by Mr. R. Phenè Spiers [*F.*], F.S.A., entitled SAINT-FRONT OF PÉRIGUEUX, AND THE DOMED CHURCHES OF PÉRIGORD AND LA CHARENTE, was read by the author, and, having been discussed, a Vote of Thanks was passed to him by acclamation, and the Meeting separated at 10 p.m.

PROCEEDINGS OF ALLIED SOCIETIES.

THE NORTHERN ASSOCIATION.

Traceries, and their position in Architectural Design. By William Searle Hicks (Newcastle).

Read 29th January 1896.

It has always seemed to me that tracery is one of the most interesting things in architecture—at all events, it holds a high place in my regard. It is an attractive study. The term tracery becomes almost synonymous with the term architectural ornament, so that a Paper on Traceries ought to be one of surpassing interest, and if it fails, the fault is less likely to be with the subject than with the handling of it.

Nature's designs, so varied, so consistent in principle, so infinitely suggestive in motive, deserve a great deal more than a passing examination to begin with. The traceries that seem to cover the sky on some mornings and evenings, filmy and lacelike, in endless and intricate perspectives (illuminated with golden and rosy glow from the rising or setting sun, stretching across the blue vault of the sky)—these are the first things that come to one's mind, but these are dreamy and ethereal, and they pass away rapidly. They are not constructive traceries like those of earth. They hold, in relation to the traceries of architecture, much the same position as the whispering of the winds to the rhythmical music of stringed instruments. They are the first suggestion to the poet's mind of the screens between earth and heaven; they establish the principle of the beauty of tracery; they move one's admiration and emotions, and they pass away and are forgotten. In the same way, who can help wondering at or admiring the traceries of the sea foam, which one looks down upon, the white lace fringe of Nature's green mantle? This, too, is transitory, like that of the clouds. The beauty is undeniable, but it is only beauty, that is to say, beauty without use: æsthetic beauty, affecting the mind and the feelings only, and, as I said before, establishing a principle of design, but going no further. Whether we look up to the heights or down to the depths, we find Nature decorating herself with traceries on her best days; when she wants to be a little better-looking than on her dull or ordinary days.

Art follows Nature in all her great principles, and this is a somewhat different thing from copying Nature in matters of detail—different because Nature's methods differ somewhat from artists' methods. I think we are quite right in going to Nature for the principles of design, though it is quite debatable how far we are right in adhering to Nature (in detailed imitations) for our decorative patterns.

Be all this as it may, it is quite clear that Nature is the fountain of art, the educator of imagination, the suggester of forms; and that the standard of ultimate criticism and ideal beauty cannot anywhere be found except in Nature at her best, Nature in health, Nature in full vigour, Nature in early growth, Nature in final development.

This, then, is why we appeal to Nature. The fact is that our minds have no power to conceive original beauty apart from Nature; and when our conventional forms are far departed from the natural forms of beauty which suggest them to us, then we begin to perceive that Art is a department of Nature; so that artistic thoughts grow in a natural sequence, one upon another, not unlike natural evolution—the principle acknowledged, some sort of development follows as a matter of course. Art is one department of Nature.

Before passing on to architectural traceries, I will say this as to natural traceries (whether piercings, relievings, or inscribings):—Nature uses three sorts of traceries, (1) Geometrical forms, as in flower and leaf; (2) Growing or consecutive forms, as in stems, branches, and tendrils, sea-weeds, &c.; (3) Independent forms, without manifest structure, such as random variegations, or the cloud and foam shapes above noticed, or the shapes made by the crystallisation of ice, on the window panes and pavements.

Nature uses tracery for three purposes:—(1) To decorate her surfaces; (2) To edge or border her masses; (3) To serve as screens; to partly conceal, partly reveal her backgrounds, her treasures beyond the barriers.

I think I am right in saying that these three purposes in Nature have their exact counterpart in Art:—(1) The decorating or relieving of plain surfaces; (2) The edging or bordering of masses; (3) The screening of what is behind. I think I can almost as safely say that Nature's forms have also their counterpart in Art, viz.:—(1) The geometrical; (2) The consecutive or branching; (3) The independent or unstructural or random traceries. But, inasmuch as architecture is constructive art, I think we may keep down our admiration rather, from the less constructive to the more constructive forms. I suppose this is why some of the accepted critics spoke of geometric forms as containing the only true principles of tracery, and the branching forms as indicating decay. But it seems to me that decay only comes with the predominance of unconstructive forms. In some places these are very beautiful, but I do not care enthusiastically for mere intricacy without rhyme or reason. I thoroughly approve of all constructive forms, whether geometric or branching; random traceries must take a lower place.

It must not be forgotten that there is a third type of constructive tracery in Art, which is hardly to be found at all in Nature, except suggestively. I mean when the love of intricacy finds its vent in interlacements and plaits. The suggestion here is rather in Art than in Nature; in weaving, plaiting, basket-making. There is a witchery and charm also in the "twisting of the rope," the web of the spider, the rigging of ships—none of which is without

* Prior to the signing of these Minutes, objection was taken by Mr. Z. King [*F.*] that they were not a true record of what had transpired at the Meeting, inasmuch as omission had been made of the fact that Mr. Woodward and Mr. Stannus had spoken in support of the Vote of Condolence on the death of Lord Leighton; neither were their remarks reported in any other part of the JOURNAL.—Mr. Stannus [*F.*] considered that the Minutes were quite correct as printed; the occasion did not warrant the publication of the few remarks made by Mr. Woodward and himself.—The Hon. Secretary observed that the names of those who spoke on the matter were mentioned on another page of the JOURNAL [p. 222], and he considered that was quite sufficient.—The Minutes were then passed, and signed by the President as correct.

its suggestive power to the eye which sees and perceives. Also a fourth type of constructive tracery, where material has suggested principles; where the rigidity of stone has suggested rigidity of ornament (not in stone only), where ductility of metal has suggested the bending and twisting forms (not in metal-work only), and so on in other ways. I should be disposed to admit these third and fourth types as perfectly reasonable and good and fundamental, though not perhaps so noble in origin as the forms which are derived from Nature herself direct—they are part of the natural evolution of art.

If you have followed me thus far, I think you will be prepared to admit what is not so fully recognised as it might be, viz. that tracery as an architectural principle is quite as applicable to the ornament of Classic architecture as of Gothic and Oriental styles. Certainly, in Classic art tracery is chiefly confined to decorating and relieving surfaces and mouldings, whereas the Gothic art uses it in the fuller and freer manner, leaving the mouldings uncarved. But the principles are the same in all, more or less, for the Classic ornaments and the frets, which decorate a frieze, or a panel, or a moulding, are tracery just as much as if they were pierced and suspended in mid-air, as in the Gothic styles.

It is interesting here to look a little more closely into the reasons for the distinctive character of Classic *versus* Gothic forms of tracery. It has been said (though I cannot quote the author) that Classic art is rather in sympathy with the sculptor's thoughts: it is statuesque. Gothic is rather in sympathy with the painter's thoughts: it is picturesque. There is no doubt of the truth of this saying, and it sets one thinking on fresh lines of thought.

The origin of Classic forms may be found in the sub-tropical lands of Egypt and Greece, where the powerful life was the animal life, that gives the sculptor his models. But the Gothic art arose among men who lived forest lives, where all the varieties of wild vegetation, of wild birds, and forest creatures are to be found, such as the painter revels in—lands of fantastic myth and fable—and thus we see the animal kingdom at its greatest in Classic thought, and the vegetable kingdom at its greatest in Gothic thought: the sculpturesque element in the one, the picturesque element in the other. The Classic is the more restrained within its own limits. Its frets and laces suggest the ornaments on the drapery of the human figure; the Gothic is the more free and fantastic, the more wild, grotesque, and unlimited; its traceries suggest the dreams of a painter and a child of the forest. This is almost a truism, but I want it here, because as a matter of first suggestion it is clear enough that the Gothic grew out of the Classic. It was not altogether independent, but it was a transition in the following order—(1) Egyptian, (2) Greek, (3) Roman, (4) Byzantine, (5) Romanesque, (6) Gothic. The Renaissance and modern are left out of count for the present. The influence of Oriental and the Saracenic arts was incidental, and they would lead me away from the main line if I would let them. I shall also mention them presently, but meanwhile it is my purpose to speak of the Classic as the early manner, and the Gothic as the later manner, in my endeavour to account for the contrast between the restrained use of the Classic traceries and the unrestrained use of the Gothic.

It is curious to work out into this matter Mr. Ruskin's saying about the sign of decay being the "forsaking of "the mass for the line"—architectural style running to seed. That is a most powerful half-truth, in art criticism—it is not a whole truth. There is a sound philosophic thought below it, which makes it very attractive; but the gradual refinement from mass to line goes very much further than merely to mark decay; it also marks all growth. You may see the principle in comparing the Classic orders among themselves; you may perceive it almost at a glance in the superficial comparison of the Classic with the Gothic styles: the Classic is massive—where the Gothic is flimsy. The great cylindrical column had already given way to slender shafts in many cases; the broad soffits to recessed orders and deeply undercut line mouldings. The wall divisions between windows had already been refined down to mullions, long before Art reached the point at which Mr. Ruskin prophesied its downfall, because forsooth the mass had given way to the line in the traceries. Mass has always been giving way to the line ever since architecture began. Certainly when the Normans started afresh they appreciated mass, and made heavier masses than they found; but the Norman idea of mass was one in which line had already begun to predominate. That traceries should develop the study of *line* is but logical and consistent, not otherwise remarkable, and in no way a mark of decay, except that all development in life, all gradual refinement, is a progress towards death; and that all increased intricacy of thought is a progress towards exhaustion and weariness.

It seems to me inevitable that so obvious a suggestion as that which Nature affords us in her tree branches, should be taken up and freely adopted, as it was by our artists. To have lost sight of it would seem to me more like a sign of decay of artistic power than the fact that they seized it. But they allowed it to run away with them. Their enthusiasm for its fantastic richness left them (to modify Disraeli's saying) "inebriated with the "exuberance" of an extravagant display; and so it came to an end, because they could neither keep up the excitement nor the cost of such an expensive game.

But we may ask the question: were its forms or its principles exhausted? To this I answer No, quite unhesitatingly. Enthusiasm was exhausted, but principles were not. The geometrical forms were never exhausted in the days of the geometrical styles. The geometric character of many of the later traceries shows this. For local example the Carlisle, Brancepeth, Hexham, and Jarrow traceries, and those which suggested Billings's well-known book on the "infinity of geo-"metric design"—these, and the Moorish, Saracenic, and other Oriental screen traceries, based on intersections of curved with straight and radiating lines, varied with geometric foliations, in which the forms are set out on squares, oblongs, triangles, diamonds, pentagons, hexagons, and other polygons, all of which are purely geometrical—all these go to show what I say, that in the geometrical period (as it is called) the geometrical mines were not worked out or exhausted at all; they were only abandoned because the suggestion of growing and branching traceries was too enticing and too obvious to be resisted at the time. But now I think we come to something which gives a point to Mr. Ruskin's doctrine about that period being the period of climax in style, the decay dating thence.

Up to that period all influences had been pouring into the one stream of thought. Whether the Scandinavian and Celtic love of intricacies and grotesque serpents and dragons, and other old Runic ornaments, or whether the Frankish love of mystery, romance, and grandeur, or whether the Byzantine and Oriental love of wealthy enrichment be taken as accounting for the style of earlier ornament, it matters not, I think. It is evident that there has been a concentration of it—all the Norman and Romanesque enrichment shows this—borrowing some of its characteristics from the North, and some from the South, and some from the East. They developed consistently enough till they reached the geometrical period; from that point they began to diverge in style. (1) The French began their Flamboyant; (2) the English began another sort of curvilinear, and carried it on to Perpendicular; (3) the Germans went their wilful ways, in defiance of all principle except freedom and fancy and unrestrained imagination; (4) the Spaniards went in for intricacy and power of shadow; (5) the Italians began at once with the Early Renaissance and all its refinements, soon forsaking the Gothic principles, which they had never held with the same tenacity

as the more Northern races had. I will say more of the Renaissance presently, but will now follow the French, English, and Germans a little further.

And first the French, because the French were really the leaders. The great geometrical French window traceries of the thirteenth century are too well known by you to need illustration—they are simple to the verge of monotony. Then we pass on—I wish I could do justice to the next period of French work, in which the geometric is just giving way to the flowing. The aisle windows of the nave at Amiens are the most impressively beautiful I have ever seen. The characteristic of them seems to me to be a most perfect study of the subordination of lines and of the outline of foliations. It is difficult to describe the delicacy of the shapes, but I remember wandering up and down looking from one variety to another, feasting my eyes, and thinking them the noblest windows I had ever seen. From this later and refined geometrical, the style passes rapidly on to the fully developed Flamboyant, of which, perhaps, Abbeville is one of the most perfectly artistic examples, in its lovely west front. Nearly all the setting-out is still purely geometrical, but the tangent curves are so well marked now that all the lines are easy and flowing and gracious, and the variety is endless, in rose window, door gables, galleries, and traceried parapets. And note here what I said before about traceries to decorate the surface, and traceries to edge or border the masses, and traceries to form screens, viz. the windows themselves. The harmonious mixture of flowing lines with geometrical and perpendicular makes this front a specially interesting and pleasing one, for the mixture suggests nothing of incongruity. Later, the French traceries passed on into a florid luxuriousness and feebleness of line, till at last they lost much of constructive beauty, and were so much overdone as to be uninteresting—as extravagance generally becomes. But if the geometrical period did not exhaust the capabilities of geometric arrangements, still less did the later French exhaust the forms which may be made in curving and branching lines. They seem to have ceased for very weariness, and in the later work of Francis I. and Henry IV. to have taken to semi-classic forms, relieved by fretting out the classic ornaments, and converting them into traceries, so as to assimilate them with the surviving Flamboyant.

In England this was all done differently. The sober and less imaginative English worked out their thoughts on steadier principles of self-development. The geometrical gave way to the flowing, but hardly to the Flamboyant, except in rare examples. We in England have a wealth of beautiful specimens of branching traceries all over the country—notably at York (west window) and Carlisle (east window) – until by degrees the rigid and stony perpendicular took firm hold on the English mind, and the stiff principles of regularity never gave way to extravagant excess of curvature. The flowing and obvious geometrical character practically died out, except in a few of the very best examples, such as Wrexham. This, indeed, retains all the best principles of tracery formation, which are seen again in the rich fan traceries which adorn the fretted vaults of the last years of the Gothic period.

In Germany, the logical minds which argued, that because you might bend the lines of a mullion, therefore you might bend and interlace your pinnacles, which are of the same material, led on the reckless Germans into all sorts of most interesting vagaries, leaving us infinite suggestions of beautiful and delicate intricacy, mixing and combining architectural forms with stems, foliations, foliages, straps, and all other bending and writhing forms, in endless profusion and complication. At this day we have numberless examples, not exactly to copy but to study from, bringing them back into steadier and more reasonable compass, if we can. The most prominent characteristics are their intricacy and lace-like delicacy, and, next, the due subordination of broad constructive lines, with the slender subsidiary ones; and finally we see the frequent repetition of main designs with endless varieties of detail. I think the first principle is well shown in a German diptych example—it is a fifteenth-century tracery in the Berlin Museum. It is intricate enough: stem and leaf work are springing from a central whorl, writhing and interlacing in perfectly harmonious curves, with no thought of sameness or symmetry, except in its boundaries.

The second principle, viz. subordination, is clearly shown in another example in the same museum. This might have been English instead of German; it is so nice, and so refined and steady; the three geometrical divisions, with slight cusps and delicate perpendicular spandrils unequally filled in, and so making a semi-conscious variety, are all very delicately conceived. In a third example, which one cannot help admiring, we see the principle of subordination beautifully, but this example is more characteristic of German work. I think the effect of the double ogee shape is excellent in quantity and weight and power of line, when compared with the filling-in of the delicate stems and foliage; but it is seriously marred by the abrupt cutting off of architectural forms, which to an English eye is quite intolerable and unreasonable. For all that, the example is full of suggestion, and I think it helps to bear out what I said about the inexhaustible suggestiveness of branch forms. If geometric forms were not worked out in geometric days, still less were the branch forms in the days of the later traceries; but Nature has another suggestion for us under this head of subordination, which I do not think has yet been made the most of in art; there is scarcely a touch of it in ancient traceries, but I have seen it in a large modern window—the east window of Sedding's church in Sloane Street, South Kensington.

The idea is this. Tree trunks diminish towards the boughs and branches—boughs and branches towards the branchlets, and the branchlets towards the twigs—and if one is looking at the sky through the stems of a winter tree, or row of trees, one sees the principle of subordination taking the form I have indicated, diminishing from the central or parent stems and outwards, to the offspring twigs. There is a suggestive thought in this, capable of more working out than it has ever yet received, in design of traceries.

Before leaving the Gothic styles, it may be well to point out the difference between English and foreign traceries a little more fully. The early French geometrical traceries are all very much alike, and the later French Flamboyant have a great deal of sameness in them.

It is chiefly in the great rose windows of the great cathedrals in France (which could not be beaten) that we find the systematic setting-out, and the perfect balance of parts, that go to make tracery work most pleasing. These qualities you find in nearly all English work of the fourteenth century, and you also find more variety in the English geometrical than in the foreign.

Sharpe's Decorated Windows will give you an excellent idea of what I mean—the geometrical windows of Tintern, Lincoln, Guisborough, and St. Mary's, York. The decorated windows of Carlisle and York Cathedrals (mentioned above) contain both of the qualities of systematic setting-out and perfect balance of parts, and are geometrically based on equilateral triangles. The French Flamboyant was too pliant, just as perhaps the English Perpendicular was too rigid.

The French artists grew impatient of any opposition of line; everything must be pliant; and one's eye wearies of the want of definite and forcible contrast in the window traceries. I may instance a series of windows in the splendid church of Saint-Jacques at Lisieux: some show this over-pliancy, while some are exactly like English traceries. This remark as to opposition of line hardly applies to their parapet traceries, which seem to me perfectly exquisite, and far beyond anything we have in this country.

I have almost said enough about Gothic traceries, and I

must now call attention in passing to the Eastern and Saracenic traceries, some of which evidently influenced the Gothic through the Spanish. In the Oriental work, so far as I know, we have nothing worth notice in the way of great window traceries, but only the smaller works which decorate the surface of the walls, as in the palace at Mashita; or of the doors, as at El Kanqueh, near Cairo; or which construct close screens, like those commonly called Cairene work. The well-known interlacements of Arab lattice traceries are strictly geometrical, and I may refer to a small book, by Lewis F. Day, which is very interesting in giving the principles for the setting-out of tracery and foliage patterns. It unravels their intricacies, and makes the most complex patterns quite simple and easy to understand.

Now let me notice the bronze doors at El Khanqueh. In the border we see a fret which for exquisite balance and regular series and proportion and general taste, would be very hard to surpass; it is pure tracery and fretwork—scarcely suggesting foliage at all. The central design has a geometrical outline and setting-out. A circle with twelve radiations. The curves of the ornament are tangent to the radiations. The radiating lines are not crossed. They are the base, from which the curves spring symmetrically, or the limit to which they attain. Here, again, there are slight suggestions of flowers and fruits, and the pattern is varied by the introduction of birds, beasts, and fishes. The same remark applies to the corner design as to the central. The mitre line gives the base of the pattern. This is fifteenth or sixteenth century work.

It is a long jump backwards to the sixth-century wall decorations of the palace at Mashita. All the better in some ways, if one is to show the universality of principles. Here you have the same slender branching lines, the same geometrical limits, the same introduction of birds and beasts, but rather more shelter and food for them in the way of leaves and fruits. I notice in this an interesting fact, viz. the beautiful enrichment of the mouldings. I mentioned this casually before. I am not in a position to make the most of this, but it seems at all events worth remarking that such decoration and fretting of the mouldings seem to have been usual in the Eastern and Classic arts. Mouldings are carved into eggs and darts and leaves, and chopped into dentils; but that principle never survived into the Gothic arts beyond the Norman period. In the Norman days they fretted and carved and traceried their shafts and mouldings, richly and plentifully enough, but with the Normans that class of work died out. After that you find hollow moulds, with foliage or flowers or other fretted ornaments growing in the hollows, or spaced here and there; but that mode of decorating the mouldings is forsaken in Gothic work, and only picked up again in the Renaissance. In Gothic work the severe pure lines of the mouldings are used as a contrast to the enrichment. But this is by the way. It has no strict bearing on traceries.

The concluding part of my Paper shall be devoted to a notice of the influence which Gothic art has had on the revived Classic in the matter of traceries, and finally to the probable influence of all this *embarras de richesse* on our modern ways of designing.

It is quite impossible that the Gothic arts should ever be so abandoned and forgotten as to have left no impress at all on the arts that followed. We know that the transition from the late Gothic back to the Classic was rather sudden, but it was not so sudden as to leave the revived Classic exactly where the Romans left it; far otherwise. Truths in art, once proved, are so great that they must always prevail to some extent.

Thus in Renaissance work we find so much intermixture of Classic and Gothic forms at first as to endanger the gravity of classical character. In our own day we see this, for the revived study of Gothic work, side by side with the revived study of Classic, has this effect on both, that it has lightened our Classic to the verge of frivolity, and unsettled it very much indeed; while the methods of revived Classic architecture have tended to sober and tone down all our Gothic work to the point of dulness and tameness. The master minds only have been able to struggle against this levelling process. I only mention it because in the earlier Renaissance it was quite evident we must have traceries. Life without pierced parapets and balconies would be unbearable. Pierced parapets must survive in some form or another. Archways thrown open without screens would be naked and quite disgraceful. To close them up with doors or curtains, so that no one could peep through, would be most unkind. Surface panels must be decorated. Plain panels would be much too severe to please the eyes that had learned to look at branching lines of foliage, at playful grotesques of animal life. Arabesque traceries must overrun the pilasters and panels; nay, even the scroll and foliage ornaments must be pierced and serve as screen traceries, like the example from the marble screen of Rodez, which is tracery to all intents and purposes, just as if it had been Gothic in style, made up of much the same elements—even geometry and symmetry have their place in the designs; and so you see in revived Classic we have the principle surviving with which I began of, 1st, edging the masses; 2nd, decorating the surfaces; 3rd, screening the openings.

The popularity of frets and traceries never altogether vanished. In the open screens of the seventeenth century, in the furniture of the eighteenth and nineteenth, in the ironwork and all the decorative crafts that came down to the Gothic revival, one finds them still, more or less, and in our own day more than ever. The Classic masters could hardly restrain the principle within bounds, and the Gothic masters have deliberately set it all free again.

Finally, the influence of all that we are able to collect of the traceries of all ages and countries is certain to be great on our own future work. We are equipped now with material enough, with principles sufficiently well established, to make a mark on the styles of the future.

Let me recapitulate the principles of design which have produced the finest results everywhere, only remarking that good taste and first-rate ingenuity are not to be commanded by a mere study of principles, or by practice among the examples, for Art is a department of Nature. An artist must be born of that nature and nourished among the principles of his art, and then he will succeed if he stick to his work. Without the natural gifts, one can no more produce the designs of a great artist than one can force melons in the soil of a cabbage garden.

But the principles are these:—(1) Natural suggestions. (2) Geometrical and symmetrical dispositions. (3) Varied repetitions. (4) Simple subordinations. (5) Balance of parts. (6) Contrast of lines. (7) Refinement of outlines. (8) Delicacy or lightness of structure. (9) Intricacy of convolutions or of interlacings.

Parker says that "the best modern architects generally "fail in the attempt to produce good Gothic tracery, while "in all other respects they have succeeded in thoroughly "good imitation of the old work, and even rival it in design." Doubtless many things have happened since Parker wrote these words. I well remember, when I was a pupil, being told to draw traceries very carefully, and to study the shapes, depths, and sections of cuspings very closely, because if one desired to get into a good office in London the most searching examination would be made as to one's power of drawing good traceries. If my Paper has been wearisome, at all events I think these last words are sufficient to justify a careful study of even such an æsthetic and non-utilitarian subject as traceries.

*** The foregoing lecture was illustrated by means of numerous rubbings, drawings, photographs, and freehand charcoal sketches made during the progress of the Paper.